UNDERSTANDING PRIMING EFFECTS IN SOCIAL PSYCHOLOGY: WHAT IS "SOCIAL PRIMING" AND HOW DOES IT OCCUR?

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How incidentally activated social representations affect subsequent thoughts and behaviors has long interested social psychologists. However, such *priming effects* have recently provoked debate and skepticism. This opening chapter of this volume on understanding priming effects in social psychology identifies two general sources of skepticism: 1) insufficient appreciation for the range of phenomena that involve priming, and 2) insufficient appreciation for the mechanisms through which priming occurs. To improve such appreciation, while previewing the other chapters in this book, this chapter provides a brief history of priming research that details the diverse findings any notion of "social priming" must encompass and reviews developments in understanding what psychological processes explain these findings. Thus, moving beyond debates about the strength of the empirical evidence for priming effects, this volume examines the theoretical challenges researchers must overcome for further advances in priming research and considers how these challenges can be met.

Examining the subtle and unanticipated effects of people's social environments on their thoughts and behaviors has long been an essential goal of research in social psychology. Indeed, one of the most enduring definitions of the field highlights the importance of studying not only the actual presence of others, but their "implied" and "imagined" presence as well (Allport, 1954). Therefore, over time, researchers have progressively pushed the limits of just how fleeting and indirect exposure to social stimuli can be and still affect people's responses, with frequently surprising results (e.g., Bargh, Schwader, Hailey, Dyer, & Boothby, 2012). As a result, it is now virtually axiomatic among social psychologists that the mere exposure to socially relevant stimuli can facilitate, or *prime*, a host of impressions, judgments, goals, and actions, often even outside of people's intention or awareness.

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However, questions have recently arisen about the evidence for some of these types of priming effects. Growing out of both broad criticisms of research practices in psychology as a whole (see Paschler & Wagenmakers, 2012) and specific failures to replicate particular examples of priming (Doyen, Klein, Pichon, & Cleeremans, 2012; Harris, Coburn, Rohrer, & Pashler, 2013; Shanks et al., 2013), some researchers have expressed doubt about the reliability or even existence of what they have labeled "social priming" (Kahneman, 2012). Further, at times, these criticisms have not only questioned whether the existing evidence supports the proposed processes by which social priming presumably occurs, but even whether these processes are psychologically plausible (Harris et al., 2013).

Whether or not one agrees with these assertions, such challenges to the accepted wisdom on priming effects in social psychology have created healthy debate and provoked a needed reappraisal by social psychologists of their basic assumptions about how and when priming effects occur (e.g., Cesario, 2014). But, at the same time, these challenges have also created confusion about just which of the many phenomena typically described by the now ubiquitous label of "priming" should be subject to the criticisms offered. That is, whereas few doubts seem to exist about whether incidental exposure to certain information can generally prime subsequent responses in ways that are not fully intended (Doyen, Klein, Simons, & Cleeremans, 2014, this volume; Harris et al., 2013; Newell & Shanks, 2014, this volume), no one has clearly specified what distinguishes the priming effects we should trust versus the social priming effects we should doubt. In addition, although some early perspectives on how priming effects occur have not survived closer scrutiny, many new perspectives have recently appeared and contributed to an evolving understanding of such effects. The primary objective of this volume is thus to reduce the confusion surrounding current discussions of priming effects in social psychology in two ways: (1) by more thoroughly considering the many phenomena in social psychology that the term *priming* encompasses, and (b) by more closely examining the psychological processes that explain when and how different types of priming effects occur.

In this opening chapter of this volume, to introduce the first question of what types of effects might be labeled "social priming," I begin with a brief and selective history of priming research in social psychology (for other historical overviews, see Bargh, 2014, this volume; Fujita & Trope, 2014, this volume; Higgins & Eitam, 2014, this volume). Based on the wide range of phenomena that make up this history, I then discuss some common features and basic assumptions social priming effects share, with the caveat that the diversity of these effects prevents any precise definition. Next, to introduce the second question of how social priming effects occur, I provide another brief and selective history of the various explanations that have emerged for such effects and consider some of their limitations. I then conclude by outlining many of the new proposals for priming mechanisms recently developed to address the shortcomings of previous perspectives. Throughout these overviews, in addition to highlighting the questions that are the primary focus of this volume, I also preview all of the other chapters included in this volume—prepared both by those who have produced much of the original work on social priming and by those who have critiqued it[1]—and their specific contributions to the larger discussion.

1. Hal Paschler and Daniel Kahneman were also invited to contribute to this volume, but respectfully declined.

A BRIEF HISTORY OF PRIMING RESEARCH IN SOCIAL PSYCHOLOGY

The term *priming* has a long history in the psychological literature and has been used in multiple ways. Although, in all of its forms, priming has generally referred to facilitative effects of some event or action on subsequent associated responses (e.g., Tulving, 1983), within social psychology, this process has specifically come to be defined in terms of how such events or actions influence the activation of stored knowledge (Higgins, 1996; Higgins & Eitam, 2014, this volume). The primary questions pursued by social psychologists studying priming have therefore involved the activation of social representations (e.g., traits, stereotypes, or goals) by exposure to different types of information, and the application of these activated representations in social judgments and behaviors. In addition, due to the separate literatures with even longer traditions in social psychology concerning how people consciously and intentionally use social information when forming attitudes and preferences (Maio & Haddock, 2007) or when judging and responding to others (Hilton, 2007), from the beginning, a primary focus of priming research in social psychology has been on how activated social representations can also have more indirect effects. That is, beyond simply examining the activation of social representations, priming research in social psychology has always considered how these representations influence judgment when people do not versus do consciously associate the activation with the judgment they are making, and do not versus do consciously intend to utilize the activated representation while forming that judgment (see Higgins, 1996).

For example, the earliest work on priming by social psychologists focused on how exposure to trait adjectives in ostensibly unrelated verbal tasks or through subliminal presentation led participants to apply these trait concepts when judging others' behaviors (e.g., Bargh & Pietromonaco, 1982; Higgins, Rholes, & Jones, 1977; Srull & Wyer, 1979). This research soon expanded to examine how other types of primes (e.g., attitude-relevant objects, Fazio, Powell, & Herr, 1983; specific descriptions of behavior, Smith & Branscomb, 1987; and broader social stereotypes, Devine, 1989) altered social impressions, as well as how priming social information influenced other types of judgments (e.g., one's own emotional experiences; Sinclair, Hoffman, Mark, Martin, & Pickering, 1994). The results of these initial studies repeatedly showed that people do appear to utilize activated social knowledge in their judgments, even when the activation arises from unrelated and irrelevant sources and, at times, even after a substantial delay following the initial activation. Given the novelty of these effects at the time and their distinctions from priming effects in other literatures (e.g., Neely, 1977), much of the focus of the early priming research in social psychology was concentrated somewhat narrowly on examining the specific processes by which priming effects on social impressions occurred.

However, beginning in the late 1990s, there was a notable shift in the focus of priming research in social psychology following a series of seminal findings suggesting that the same incidental activation of particular traits or social stereotypes could not only alter the perception of social targets but also the enactment of associated social behaviors (see Dijksterhuis & Bargh, 2001). That is, these new findings indicated that exposure to, for example, African-American faces seemed to increase the likelihood that people would not only form more stereotype-relevant

impressions of others' behaviors as hostile, but also behave in ways consistent with hostile stereotypes themselves if the opportunity presented itself. In light of the implications that priming could directly influence actions as well as impressions, social psychologists began concentrating less on investigating the mechanisms of priming effects and more on exploring the boundaries of these effects by documenting (a) what types of behaviors and outcomes could be primed (e.g., Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001; Hassin, Ferguson, Shidlovski, & Gross, 2007) and (b) from what aspects of the environment these primes could arise (e.g., Williams & Bargh, 2008; Zhong & Liljenquist, 2006). Indeed, in multiple areas of research, rather than the primary focus of the studies itself, priming evolved into more of a tool to study the behavioral effects of activating representations of specific social contexts, such as feeling included versus excluded (e.g., Molden, Lucas, Gardner, Dean, & Knowles, 2009) or high versus low in power (e.g., Galinsky, Gruenfeld, & Magee, 2003), or the effects of inducing specific mindsets, such as a focus on abstract versus concrete representations (e.g., Fujita, Henderson, Eng, Trope, & Liberman, 2006) or on pursuing growth versus maintaining security (e.g., Molden & Finkel, 2010).

Thus, as even this cursory historical review illustrates, the notion of what constitutes a priming effect in social psychology has expanded considerably over time. Research on priming different types of socially relevant stimuli now subsumes an extensive and diverse collection of phenomena, from how the incidental activation of specific social traits alters current impressions, to how the similar activation of general social stereotypes alters current behaviors, to how cues that activate or spur the recall of specific social contexts and events alter current preferences and choices. Overall, priming effects in social psychology therefore encompass a highly diverse set of phenomena and processes whose boundaries are still being explored.

WHAT IS "SOCIAL PRIMING"?

Given this diversity in the priming effects studied by social psychologists, any classification of such effects with the common label *social priming* can only broadly characterize this area of research rather than enumerate necessary and sufficient criteria that precisely define any related phenomenon. Nevertheless, to allow for some generalization across these different types of priming and to identify shared assumptions about how they occur, it is worth at least outlining common features among the various phenomena described thus far.

First, priming effects in social psychology all involve some stimulation of people's mental representations of social targets, events, or situations that then influences subsequent evaluations, judgments, or actions (Eitam & Higgins, 2010; Higgins & Eitam, 2014, this volume). Further, as alluded to earlier, the influence of this priming is assumed to occur outside of *either* (a) awareness of this potential influence *or* (b) intention to utilize the activated representations during judgment or action (Loersch & Payne, 2011; 2014, this volume). That is, the effects of the prime are presumed to arise because people either do not recognize its potential effects on their subsequent responses or, even if they do, still do not intend to utilize the primed representations when making these responses. Thus, in general, priming research in social psychology is largely concerned with how cues that call to mind

particular social situations or relationships can subtly influence people's responses even when they do not deliberately connect these cues to their current thoughts and actions.

However, it is important to note that although priming effects in social psychology involve a lack of awareness for the specific influence of the prime on one's responses, they do not also require a lack of awareness for the prime itself (cf. Cleeremans, Destrebecqz, & Boyer, 1998). Many (if not most) examples of these effects involve conscious exposure to or rehearsal of some information prior to the primary measures of interest (see Bargh et al., 2012; Higgins, 1996). Instead, it is people's failure to recognize the possible implications of this exposure that is critical. Moreover, although priming effects in social psychology involve a lack of intention to utilize the primed representations, they do not also require a lack of control over the prime's effects (cf. Posner & Synder, 1975). Indeed, when people do consciously recognize the potential influence of primed social representations on their judgments, the effects of the prime often disappear (if not reverse, creating contrast effects; see Higgins, 1996; Loersch & Payne, 2014, this volume). Thus, although some priming effects studied by social psychologists certainly can operate completely outside of awareness or control (e.g., Payne, Chen, Govorun, and Stewart, 2005), overall, these effects are typically conceptualized as nonconscious, but not as fully automatic (see Bargh, 1989).

The importance of attempting to outline at least some broad characteristics shared by the many different priming effects studied by social psychologists is reinforced by the Doyen, Klein, Simons, and Cleermans (2014) contribution to the opening section of this volume on conceptualizing social priming. As they discuss, part of the current controversy surrounding particular types of priming effects in social psychology is that miscommunications between researchers who study priming within separate research traditions can often arise from a failure to clearly articulate basic assumptions. They thus describe how explicit identification of the qualities of people's exposure to and processing of a prime that are assumed to be critical for the effect of interest, as well as better articulation of the mechanisms required to explain this effect, are necessary to make connections between the various literatures on priming.

However, as noted above and as Ferguson and Mann (2014) also explain in their contribution to opening section, it would be a mistake to use a term like *social priming* to represent a particular set of assumptions or proposed mechanisms that apply to all of the priming effects social psychologists study and can be supported or refuted by any particular set of studies, as some have seemed to suggest (Harris et al., 2013; Kahneman, 2012). Indeed, after elaborating on the lack of precision in the term *social priming*, Ferguson and Mann go on to discuss how a large subset of the priming effects studied by social psychologists that involve evaluative priming closely resembles priming effects studied in other areas of psychology and to argue that the mechanisms for this whole class of effects could even be used to explain some of the priming phenomena that have come under scrutiny.

In their contribution to the opening section of this volume, Wentura and Rothermund (2014) further illustrate the importance of avoiding reliance on the broad label *social priming*. They first detail an under-appreciated distinction within the priming literature in social psychology that involves relatively short-term effects (lasting seconds) from the specific content of the knowledge activated by the prime versus relatively long-term effects (lasting minutes or even days) from how the

primed content alters stored representations in memory. They then discuss how and when both of these types of effects may occur and the separate, but equally important, roles they both may play in social judgment and behavior.

Finally, in their contribution to the opening section of this volume, Fujita and Trope (2014) detail yet another important distinction within the priming literature in social psychology that undermines any monolithic application of the term *social priming*. After describing forms of priming that involve more general procedural mindsets rather than the contents of specific representations, they then distinguish between *structured* mindsets that lead people to seek out and construct particular representations of their social environment in a more top-down manner versus *unstructured* mindsets that lead people to attend to whatever salient cues an environment affords in a more bottom-up manner. They also go on to detail the implications of each of these mindsets for how people should respond to different circumstances in which priming might be expected to occur.

Thus, in summary, the many different types of priming effects studied by social psychologists have some prototypical features that separate them from forms of priming studied in other areas of the literature. However, as discussed throughout the opening section of this volume, any use of the term *social priming* to suggest a precise set of common mechanisms across these diverse effects would likely create as much confusion as clarity.

EXPLAINING PRIMING EFFECTS IN SOCIAL PSYCHOLOGY

Although the diverse range of priming effects investigated by social psychologists may not share a common mechanism, identifying the equally diverse range of processes that might explain these effects is a critical goal in understanding how and when priming occurs (Higgins & Eitam, 2014, this volume). Returning to the earliest studies on how priming particular trait categories affects social impressions (e.g., Higgins et al., 1977; Srull & Wyer, 1979), the initial mechanisms proposed all involved two components: (1) the "excitation" of representations in memory by some process of spreading activation through a semantic network of associations, and (2) the use of these excited, or *accessible*, representations to encode information about a social target that was subsequently received. Thus, at the outset, explanations of priming effects in social psychology did not solely rely on the sustained semantic activation of primed categorical knowledge (cf., Neely, 1977). Instead, after the initial influence of this activation on which representations were more ready for use, such efforts were assumed to involve additional interpretive processes to account for the more enduring effects of the prime (see also Wentura & Rothermund, 2014, this volume). The necessity of additional processes beyond semantic activation to explain the influence of trait primes on impression formation was soon reinforced in studies by Smith and colleagues (e.g., Smith & Branscomb, 1987), which suggested that the prolonged effects of priming trait categories relied at least as much on the initiation of inferential procedures involving those trait categories as the activated content of any particular representations (cf. Anderson, 1993).

Yet, once again, studies suggesting that priming could affect social behaviors as well as social impressions (Dijksterhuis & Bargh, 2001) led to a major shift. Beyond generally increasing interest in the outcomes rather than the mechanisms

of priming, as discussed earlier, such findings also elevated the importance of spreading activation rather than encoding processes. That is, extrapolating from emerging evidence that imagining actions activates the same areas of the brain as performing them (e.g., Prinz, 1997), researchers proposed that priming particular stereotypes could increase the accessibility of representations of behavior associated with those stereotypes and thus produce the enactment of that behavior if it were applicable to one's present circumstances (Dijksterhuis & Bargh, 2001; see also Bargh, 2014, this volume; Dijksterhuis, van Knippenberg, & Holland, 2014, this volume; Ferguson & Mann, 2014, this volume).

In such *direct expression* explanations for priming effects on behavior, without additional encoding or inference processes to sustain the effects of primed representations, the continued accessibility of the representation itself would appear to determine whether the associated behavior is enacted. Such mechanisms would also seem to imply that, when accessible, primed behaviors should occur whenever the situation allowed. These implications concerning the limited duration and inflexibility of priming effects that are associated with direct expression accounts of priming are a major source of the recent criticism and skepticism of social psychological research on priming. But, an underappreciated body of research by social psychologists themselves has also recently challenged direct expression accounts of priming and reintroduced the important role of encoding and inference in this process (e.g., Cesario, Higgins, & Plaks, 2006; Loersch & Payne, 2011; Wheeler, DeMarree, & Petty, 2007).

The second section of this volume, focused on understanding when and how priming effects in social psychology occur, includes chapters presenting extended discussion of both the criticisms of direct expression accounts and the recent attempts to update these accounts. First, Newell and Shanks (2014) elaborate on the empirical and theoretical limitations of assuming direct, automatic effects of primes on behavior. Arguing that the large literature on anchoring effects in magnitude judgments provides a representative test case for direct expression accounts of priming, they review evidence that questions whether anchoring (a) occurs outside of awareness, (b) is beyond one's control, and (c) produces broad effects on behavior. From this evidence, they further argue that the automatic expression of trait or stereotype primes in behavior across unrelated contexts is theoretically and empirically implausible as well. Next, Wheeler, DeMarree, and Petty (2014) and Cesario and Jonas (2014) also discuss limitations in direct expression accounts of priming effects on behavior and propose additional types of encoding mechanisms that could explain these effects. Wheeler and colleagues describe evidence that priming affects behavior because the representations that become accessible temporarily alter people's *active self-concept*, which then further influences the behaviors they choose. Cesario and Jonas describe evidence that priming social traits or categories triggers an assessment of one's preparation to interact and that the behavior that follows this prime is determined by how people encode the resources they have available in terms of what might be required in this interaction. Following this, Loersch and Payne (2014) describe a broader set of encoding mechanisms that could explain the effects of priming not only on behavior, but also on goals and impressions. They propose that people attribute the increased accessibility that results from priming to a specific source, and that whether this source is, for example, someone else's actions versus one's own choices determines whether the prime affects social impressions versus social behavior, respectively. This broad

inferential process thus potentially captures the more specific encoding effects involved in various priming effects studied by social psychologists within a single process model.

In the final chapter of this second section of this volume, Schröder and Thagard (2014) take a somewhat different approach to explaining priming effects by outlining a computational model in which these types of encoding processes could be implemented without awareness or intention. This models relies on processes of parallel constraint satisfaction in a neural connectionist network that includes activated representations of the prime, the self, an applicable behavior, and the potential target of this behavior; it can therefore incorporate the influences of encoding processes such as the active self-concept, perceived behavioral resources, or the inferred source of the prime on how this prime affects judgment or behavior (see also Schröder & Thagard, 2013). Such a perspective answers criticisms that direct expression mechanisms relying on spreading activation from primed representations are too narrow and inflexible by showing that a more sophisticated account of how this activation spreads and what other representations are involved does not possess these limitations.

Considering the chapters in this second section of this volume as a whole, no complete consensus on the mechanisms responsible for various priming effects in social psychology yet exists. However, these chapters do agree that current perspectives on the direct expression of primed representations must be expanded and they each provide insight into emerging evidence that suggests important future directions for building such a consensus.

FUTURE DIRECTIONS FOR PRIMING EFFECTS IN SOCIAL PSYCHOLOGY

Extending this consideration of the future of priming research in social psychology, the final two sections of this volume focus on how this research can best continue to expand. The chapters in the first of these sections, focused on examining new sources from which priming effects might arise, identify several new areas of research that could further extend the range of priming phenomena in social psychology. Lakens (2014) describes emerging perspectives on how, beyond arising from the activation of semantic or symbolic representations, priming effects can also arise from sensorimotor representations (see also Bargh, 2014; Jonas & Cesario, 2013), and critically reviews existing theoretical perspectives on how such *embodiment* effects occur. Going further, Smith and Mackie (2014) discuss how, beyond arising from semantic or sensorimotor information in their present environment, priming effects may stem from people's spontaneous and unintentional simulation of how others might respond.

The chapters in the second of these sections, focused on both the past and future of priming research, all discuss the history of such research in social psychology to clarify the critical issues that new studies on priming should address. After beginning by reviewing the recent history of research on priming behavior and suggesting these effects might be more robust and less counterintuitive than recently portrayed, Dijksterhuis, van Knippenberg, and Holland (2014) discuss several improvements in theory and methodology that promise to strengthen research on priming and the field as a whole. Bargh (2014) next provides a more extensive his-

tory of research on priming behavior, arguing that controversial results involving symbolic primes of social traits and stereotypes are but a small piece of this history and only one of the many ways in which primes may influence ongoing behavior. He then reviews what he sees as more important examples of behavior priming that occur in naturalistic social environments and experiences. Finally, Higgins and Eitam (2014), return to the original research on priming social impressions, focusing on how the history of this research informs current discussions of the replicability of priming effects. They then argue that true progress in priming research requires more than just calling for greater attention to moderating variables that might alter such effects, and must involve greater attention to mediating variables that explain these effects (see also Cesario & Jonas, 2014).

On the whole, this volume on understanding priming effects in social psychology provides a comprehensive overview of what has been one of the most central areas of research in social psychology over the past 30 years. Furthermore, although the contributions to this volume identify important challenges that exist in determining the size and range of such priming effects, as well as in clearly explaining how these effects arise, they also illustrate that rather than facing crisis, social priming research is poised to expand and provide new insights on the subtle and pervasive ways in which people's social environments influence their thoughts and actions.

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