On Building, Defending and Regulating the Self

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The Roles of the Self in Priming-to-Behavior Effects

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Research has shown that the activation of stereotypes and traits can influence subsequent behavior. For example, activation of the African American stereotype can lead both African Americans (Steele & Aronson, 1995) and non–African Americans (Wheeler, Jarvis, & Petty, 2001) to perform poorly on a standardized test. Similarly, activation of the eldery person stereotype can lead both older individuals (Hausdorff, Levy, & Wei, 1999) and college students (Bargh, Chen, & Burrows, 1996) to walk more slowly. Although the effects of stereotype activation on behavior have been robustly demonstrated by many researchers in several domains, the underlying mechanisms for the effects have proven difficult to determine conclusively (Wheeler & Petty, 2001).

In this chapter, we briefly review some of the different accounts that have been proposed for prime-to-behavior effects and then describe a new account that involves the active self-concept. Evidence consistent with this active-self account is reviewed, and the effects of the self on the magnitude and direction of prime-to-behavior effects are described. We conclude by considering the active-self account in the context of the other alternative formulations.

PROPOSED MECHANISMS FOR PRIME-TO-BEHAVIOR EFFECTS

A number of different prime-to-behavior mechanisms have been proposed. In this section, we first review two popular accounts—automatic behavior (ideomotor theory) and goal activation (auto-motive theory)—and then present our active-self framework.

Ideomotor Theory

The basic premise of ideomotor theory is that ideation is a sufficient factor for initiating action (Carpenter, 1893; James, 1890/1950). Ideomotor theory suggests that thought does not require will as a sidekick to initiate action; thought alone is sufficient, at least in the absence of inhibitory factors. According to James (1890/1950), the willing is in the thought itself: "To attend to [an action] is the volitional act, and the only inward volitional act which we ever perform" (p. 819). A wide array of evidence consistent with the ideomotor notion is found in the accounts of individuals who engage in actions without the perception of willing them. For example, many occult phenomena popular as party tricks and other informal diversions in the late 19th century (see Wegner, 2002, for a review) involved actions for which the actors felt no conscious intentions. Many of these phenomena involved communication with spirits through means of facilitating devices such as Ouija boards, pendulums, or tables. In the latter example, individuals would place their hands beneath the table, summon the dead, and ask them questions. The dead would presumably answer these questions by various means, including the tapping of table legs and the turning of the table itself. Perhaps not surprisingly, research subsequently exposed these and other phenomena to be the result of the participating individuals and not of the occult. Equally interesting, however, are the sincere protestations among the participants, who insisted that they played no causal role in the actions. Although these participants were thinking about and anticipating certain actions (e.g., that the table leg would tap twice to indicate "no"), they believed that they had nothing to do with the action's execution. Hence, the thought itself was sufficient to initiate the action in the absence of experience of will.

The ideomotor account for stereotype prime-to-behavior effects is similar to that of James and Carpenter, but just a few steps removed. The stereotype affects behavior, according to this account, by activating related behavioral representations (Bargh, Chen, & Burrows, 1996). Stereotypes include traits and other information relevant to a category of people. Most relevant for our concerns is the notion that individuals have knowledge of the behaviors that typify the traits included in the stereotype. Hence, this account holds that activation of the stereotype leads to activation of traits, which leads to the activation of related behavioral representations. On it goes through the concatenated activation of associated constructs until the behavior is initiated. For example, exposure to terms that would invoke an older individual stereotype (e.g., *bingo*, *Florida*) could make other aspects of the stereotype (e.g., *slow*) accessible in memory (e.g., Devine, 1989). Associated with these traits are trait-related behavioral representations. For example, a behavioral instantiation of the slow older individual stereotype is walking slowly. If this behavioral representation were to be sufficiently activated, the action would then result.

Various features of the ideomotor account have received support. For example, imagining an action activates the same areas of the brain as actually engaging in the action, and perception of an action can increase the likelihood of its execution in oneself (see Dijksterhuis & Bargh, 2001, for a review). Hence, support for the

perception–behavior link has been obtained both at the neurophysiological and behavioral level.

Auto-Motive Theory

Auto-motive theory (Bargh, 1990; Bargh & Gollwitzer, 1994; Chartrand & Bargh, 1996) is similar to ideomotor theory in that it suggests that behavior can be directed by the unconscious activation of mental representations. However, whereas ideomotor theory describes the automatic and direct activation of behavioral representations, the auto-motive model describes how behavior can be indirectly affected via the automatic activation of goals and motivations (Bargh, 1997). The theory suggests that goals can be automatically activated by environments in which that goal has been consciously activated repeatedly. Over time, the activation of the goal becomes more automatic until conscious activation of the goal becomes unnecessary. More recently it has been suggested (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Troetschel, 2001) that goals could be activated by stereotypes or stereotyped targets as well. For example, activation of the professor stereotype could activate the goal to solve intellectual problems or to achieve. Experimentally, goal states have been primed by presenting participants with goal-related words (e.g., *impression*, to activate an impression-formation goal; Chartrand & Bargh, 1996) or by priming them with individuals that might be associated with different goals in memory (e.g., a friend vs. a coworker; Fitzsimons & Bargh, 2003).

Bargh and colleagues (Bargh et al. 2001) suggested that many effects previously explained by ideomotor processes could in fact be explained by automatically activated motivations, as proposed by auto-motive theory. Auto-motive theory could demystify the influence of primes on complex behaviors requiring complex behavioral chains, they argued, because activated goals can flexibly operate over time and interact with the environment to reach a desired end state—unlike automatically activated behaviors, which are presumably more static and temporally restricted. Individuals are likely to have flexible behavioral routines capable of helping them approach desired end states.

As a replacement for ideomotor theory, auto-motive theory has some ambiguities. First, in the context of stereotype activation, it is not clear that individuals have developed complex goal-directed behavioral routines for the goals of others. Second, many behaviors shown to be influenced by primes seem unlikely to be goal directed, either because they are undesirable (e.g., acting stupidly) or unintentional (e.g., older people probably do not have the goal of walking slowly). Third, as described below and elsewhere (Wheeler & Petty, 2001), the precise goal activated by exemplars or stereotypes is not always clear a priori. For example, it is possible that presentation of the African American stereotype would activate the goals of African Americans, but it is also possible that one's goals toward African Americans would be activated (see Chen, 2000). Similarly, activation of significant-other exemplars (e.g., one's mother) could potentially activate the goals of that exemplar, that exemplar's goals for oneself (Shah, 2003), or one's goals toward that exemplar (Fitzsimons & Bargh, 2003). Despite these ambiguities in

predicting trait and stereotype goal-related behaviors, the notion that goals can be automatically activated and pursued continues to receive support.

Because primes can have many different associations, distinguishing between the ideomotor and auto-motive accounts can be challenging. Researchers in this area have typically supported the goal activation account by showing that prime-induced behavior can mimic behavior resulting from consciously activated goals. For example, primes can create behavior that increases in intensity over time, occurs in the face of obstacles, and is resumed after interruption (Bargh et al. 2001).

An Active Self-Concept Account

We refer to the third possible account for prime-to-behavior effects as the *active self-concept account*. According to this account, primes can sometimes work to temporarily influence conceptions in the activated or working self-concept and these modified self-conceptions can then determine the actions that occur. In traditional priming impression-formation studies (e.g., Higgins, Rholes, & Jones, 1977), temporarily accessible information from a previous context is (mis)attributed to a perceptual target, presumably because the source of activation is confused (e.g., Higgins, 1998; Mussweiler & Neumann, 2000). In a similar fashion, accessible information could sometimes bias representations of the self.

The self is a complex and multifaceted cognitive representation that can include myriad types of information including one's personality traits and characteristics, important relationships, group memberships, behavioral tendencies, and goals. The representation of self-knowledge has been described in various ways, including schematic (e.g., Markus, 1977), hierarchical (e.g., T. B. Rogers, 1981), and as a multidimensional space (e.g., Breckler & Greenwald, 1982, cited in Greenwald & Pratkanis, 1984), among others (for reviews, see Greenwald & Pratkanis, 1984; Kihlstrom & Cantor, 1984; Markus & Wurf, 1987).

Despite organizational differences across the models, most analyses assume that the representation of self-information in memory shares features with other types of representations, such as one's attitudes or beliefs about the world. Much like other types of represented information, self-information can influence encoding, interpretation, and retrieval of related information (e.g., Kihlstrom et al., 1988). Additionally, self-information can vary with respect to its complexity (e.g., Linville, 1985), clarity (e.g., Campbell, 1990), and accessibility (e.g., Markus, 1977).

Theorists have proposed that the self is an important determinant of behavior (e.g., Cross & Markus, 1990). Linking an idea or action to the self, they have argued, makes it self-relevant and therefore increases the likelihood of action (Cross & Markus, 1990; Hull, Slone, Meteyer, & Matthews, 2002), and research indicates that the content of the active or working self-concept can affect behavioral responses (e.g., Ruvolo & Markus, 1992). Hence, the extent to which activated information is included in the self-concept could have implications for the direction and magnitude of subsequent behavior.

Traditionally, most models of self-representation have shared the characteristic that the self-knowledge represented in these different structures has been assumed to be explicit. That is, these different types of information are known to the person and can be retrieved and explicitly reported (e.g., C. R. Rogers, 1951). Much as primes can bias individuals' explicit judgments about others' personality characteristics (e.g., Higgins et al. 1977), they could also bias one's explicit judgments about oneself (e.g., Stapel & Koomen, 2000).

Other recent research has suggested that individuals may sometimes have implicit self-information that is inaccessible to conscious awareness (e.g., Greenwald et al., 2002; Greenwald & Farnham, 2000; Hetts, Sakuma, & Pelham, 1999). That is, information can be represented in memory and linked to the self, but the individual can be unaware of it. This information can include the same types of dimensions reflected in explicit self-representations, including evaluations (Hetts et al., 1999), group memberships (Greenwald et al., 2002), traits (Greenwald & Farnham, 2000), and motivations (McClelland, Koestner, & Weinberger, 1989). These implicit self-representations might also be subject to influence by primed content.

Considerably more research has been conducted on the explicit rather than the implicit self-concept, though they could share some of the same features. Research on the explicit self-concept has emphasized the simultaneous stability and malleability of self-representations (e.g., Markus & Kunda, 1986). Although some individuals may be resistant to influences on the self in some domains (e.g., Markus, 1977), individuals' working self-concepts have been shown to be, on average, relatively malleable. For example, individuals believe themselves to be more helpful after complying with a request (e.g., DeJong, 1979), heavier when surrounded by less heavy people (e.g., McGuire & Padawer-Singer, 1976), and more extraverted after describing ways in which they are outgoing (e.g., Fazio, Effrein, & Falender, 1981). Little is known about the malleability of the implicit self-concept. However, research on implicit attitudes suggests that implicit constructs can be significantly influenced by situational factors (e.g., Dasgupta & Greenwald, 2001; Lowery, Hardin, & Sinclair, 2001), and it seems plausible that implicit self-conceptions could also be susceptible to contextual influences.

Once altered, both implicit and explicit self-concept representations have the potential to alter behavior. For example, some research shows that the implicit self-concept is more likely to guide spontaneous behaviors, whereas explicit self-representations are more likely to guide more deliberate behaviors (Asendorpf, Banse, & Muecke, 2002). To simplify presentation throughout the remainder of the chapter, we refer to the active self-concept as the *self-concept* (implicit or explicit) that guides behavior in the measured domain, though we acknowledge that implicit and explicit self-representations may have influences on different types or aspects of behaviors and could potentially be influenced by different contextual factors.

Some of the variability in the active self could be due to the voluminous quantities of information individuals have about themselves. Individuals have been shown to have complex and multifaceted identities, and only a small subset of identity-relevant material can be accessed at any given time (e.g., Linville &

Carlston, 1994; Niedenthal & Beike, 1997). As a result, the active self of individuals could differ depending on the subset of identity-relevant material that happens to be salient and accessible in that context (Markus & Wurf, 1987).

The limits of malleability of the self-concept and their relationship to chronic self-knowledge have not been fully tested. As a result, different models regarding the way in which primes could bias accessible self-information are plausible. It is possible that the effects of the prime on the self and behavior are dependent on the types of self-content available in memory. Alternately, it is possible that effects of the prime could be relatively independent of stored self-linkages.

Biased Activation Model   One possible model by which the self could play a role in prime to behavior effects, the *biased activation model*, involves the selective activation of a biased subset of individuals' identities (see Figure 11.1). Primes could be one sort of contextual influence that could bias the subset of self-information that is accessible, but the extent of the bias could depend on the type and amount of information available for activation. For example, the magnitude of the effect of an "extraversion" prime on behavior could depend both on one's chronic level of extraversion and the amount of extraversion-relevant material in the self-concept available for activation. According to this model, if two individuals chronically report equal levels of extraversion but have different amounts of extraversion self-concept material available for activation, larger extraversion priming effects should be observed in the individual for whom there is more extraversion self-material in memory.

Figure 11.1 provides a visual depiction of this model. This hypothetical individual has social, artistic, and calm as chronically accessible aspects of her self-concept, but also has the traits of lazy, aggressive, and athletic included in her self-concept. After being primed with the African American stereotype, the stereotype-consistent self-concept traits lazy, aggressive, and athletic are made accessible and thus bias her self-concept to be more stereotype-consistent than it is in the absence of the prime. Again, as noted above, the activated traits could be in awareness such that the conscious working self-concept is modified, or the activated traits might be below the level of conscious awareness, thereby producing a change in the implicit self concept.

Expansion Model   Another possible model, the *expansion model*, suggests that the boundary between self and nonself is permeable. As a result, information not typically associated with the self could, under some circumstances, cross the boundary and be considered self-descriptive. Hence, according to this model, the chronic self-concept would not necessarily place a limitation on the effects of primes on behavior. Some potential support for this mechanism comes from the literature on source monitoring (Johnson, Hashtroudi, & Lindsay, 1993). Although this literature has generally focused on memory-related phenomena (e.g., Dodhia & Metcalfe, 1999; Mather, Johnson, & De Leonardis, 1999), recent research has also examined the effects of source monitoring on judgment. For example, Mussweiler and Neumann (2000) found that judgmental assimilation occurs when

the source of accessibility can be (mis)attributed to the self, and contrast occurs when accessibility is attributed to an outside source. Although the effects of accessibility on judgments about others may not always be the same as the effects on self-judgments and behavior (e.g., Smeesters, Warlop, Van Avermaet, Corneille, & Yzerbyt, 2003), some research suggests that similar results occur across the three domains. For example, a "distinct" (Stapel & Koomen, 2001) exemplar prime is likely to produce contrast in judgment about others (Stapel, Koomen, & van der Plight, 1997), in perceptions of the self (Dijksterhuis et al., 1998), and in behavior (Dijksterhuis, et al. 1998). Thus, misattribution of the source of construct accessibility could potentially allow primed content to cross the barrier into the active self-concept in the absence of such information's being chronically stored prior to the prime.

Figure 11.1 provides a visual depiction of this model. This hypothetical individual initially does not have any stereotype-consistent traits included in her chronic self-concept. After being primed with the African American stereotype, some stereotype consistent traits become associated with the self, despite their lack of inclusion in the self-concept prior to the prime.

Although proposed as alternative accounts, it is possible that the expansion of self to include primed nonself material would depend on its coherence with the other elements of the self-concept. For example, a woman who considers herself to be a frank, rugged sports fan might report higher aggression after an African American prime than would a woman who considers herself to be a quiet, bookish cat lover, even if each woman believes herself to be equally nonaggressive prior to the prime. This is because the trait of aggressiveness is plausibly more consistent with the self-concept of the former woman than the latter woman. Additionally, it is possible that the amount of bias could depend on the extent of overlap between the stereotype and the self-concept. For example, a woman primed with the African American stereotype who has some stereotype-consistent traits (e.g., lazy and religious) in her self-concept could have greater bias from other stereotype-consistent, but semantically unrelated, traits (e.g., aggressive) than would someone who had no stereotype-consistent self-concept traits. In this instance, the former woman would still show expansion of the self-concept to include new material (i.e., aggressive), consistent with the expansion model, but this extent of bias would depend on the extent of overlap between semantically unrelated self-stereotype content. Hence, self-conceptions could sometimes extend to nonself traits, but the likelihood of such inclusion could depend on the traits that are part of the self-concept prior to the prime.

EVIDENCE FOR THE ROLE OF THE SELF IN PRIME TO BEHAVIOR EFFECTS

A growing body of research is consistent with the active-self model of prime-to-behavior effects. Although primes can have many different types of effects on behavior, these effects can be coherently understood by considering the influence
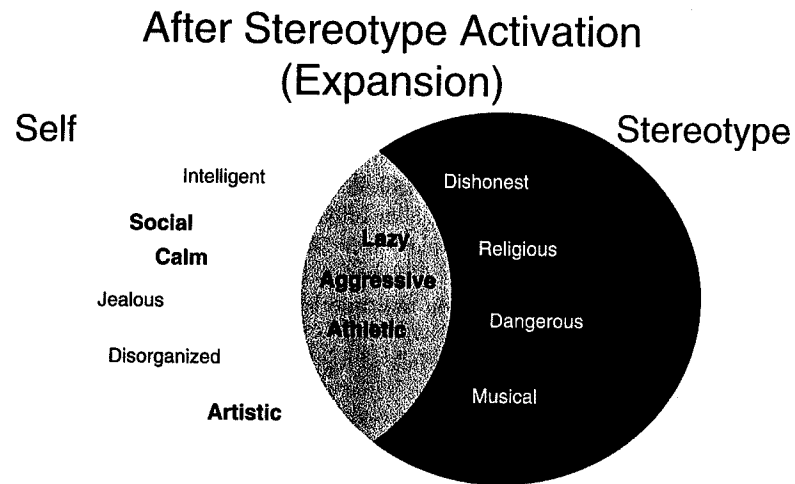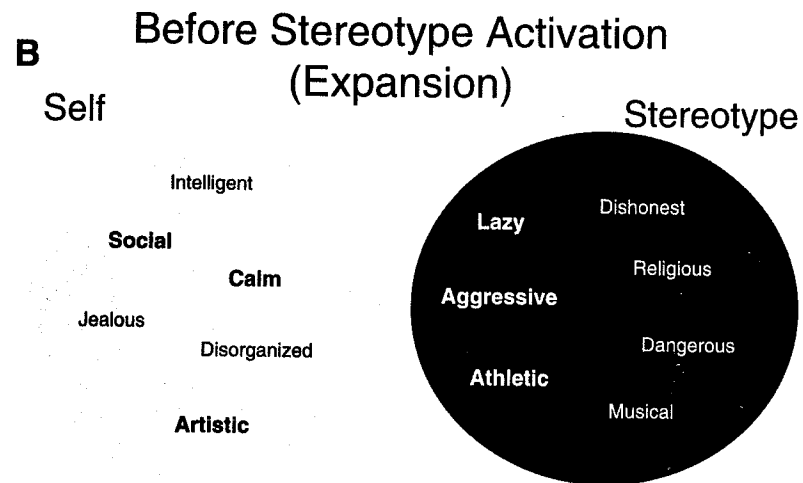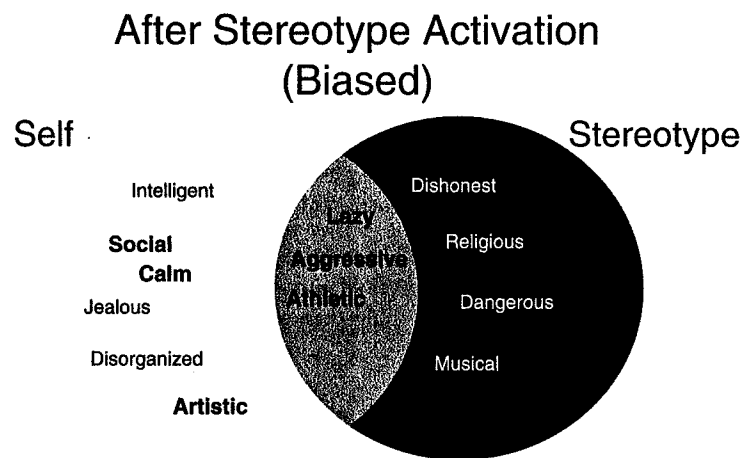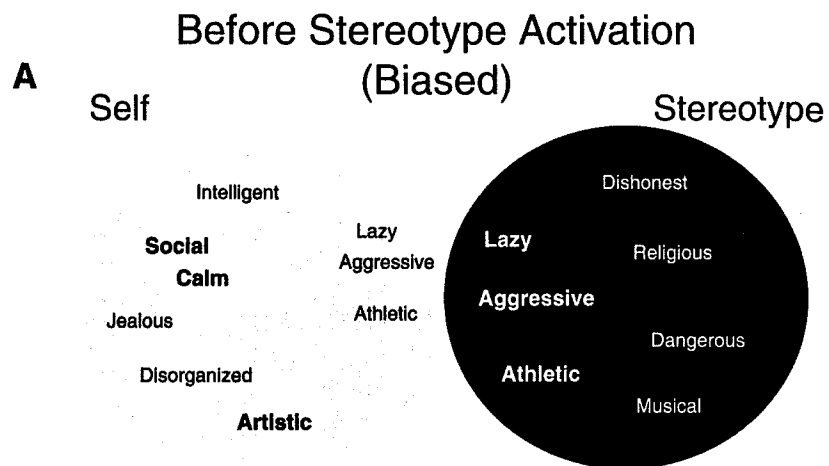
FIGURE 11.1. Visual depiction of biased activation model (A) and expansion model (B). Items in bold indicate constructs that are the most accessible following activation of the categories. (Within the self-concept, these items would constitute the working self-concept.)

of the prime on the active self-concept. We review different kinds of effects and discuss the possible role of the self in each effect.

Assimilation Effects

The first type of effect that a prime can have on judgments and behaviors is assimilation, and this is the most frequently demonstrated behavioral consequence of trait, stereotype, and goal primes (see Wheeler & Petty, 2001, for a review). In this type of effect, individuals primed with a trait, stereotype, or goal subsequently behave congruently with the implications of the primed construct. For example, individuals primed with the African American stereotype act more aggressively (Bargh et al. 1996) and perform worse on standardized tests (Steele & Aronson, 1995; Wheeler et al., 2001). Both of these behaviors are consistent with the behaviors implied by the African American stereotype.

Although the effects of non-self-relevant stereotypes on behavior have typically been explained by an ideomotor account, they could also sometimes result from the biased activation of prime-consistent material in the active self-concept.[1] For example, individuals primed with the African American stereotype could perceive themselves to be more aggressive or less good at math. If the self is involved in determining assimilation to primed constructs, the effects of the prime might not be equivalent for everyone. Instead, the extent of the effect of the prime on behavior could depend on the extent to which the self is easy to influence and is actively linked to the primed constructs. Additionally, prime effects could depend on idiographic self-concept ties to the primed construct and on the extent to which the self is used to determine action.

Accessibility of a Stable Self-Concept
If primes can affect behavior by temporarily modifying self-representations, then the effects of a prime on behavior should be reduced when individuals have highly accessible and stable self-representations. In support, some research studies have shown that activation of the self can diminish prime-to-behavior effects. For example, Dijksterhuis and van Knippenberg (2000) showed that the presence of a mirror can decrease the effects of primes on behavior. They argued that the mirror can activate alternative goals and behavioral cues to action that interfere with the action of the prime. Making one's actual goals and behavioral cues salient can therefore presumably diminish the effectiveness of the prime in modifying them.

Similarly, other research has shown that when the chronic self is activated or made salient just prior to reception of a prime, the effects of that prime on behavior are diminished. For example, in one experiment (Smeesters, Warlop, Yzerbyt, Corneille, & Van Avermaet, 2003), participants' social value orientations were determined on the basis of their decisions on the Ring Measure of Social Values (Liebrand, 1984). In this task, participants chose between pairs of money allocations for themselves and another person. Based upon their choices and the consistency with which they make them, they can be defined as high- or low-consistency prosocial or proself individuals. These individuals then engaged in a

task designed to increase their self-focus or not. Following the self-focus task, they were primed with businessperson, religious person, or neutral stereotype content. Finally, participants played a dictator game in which they freely allocated chips to themselves and a partner.

Results indicated that social value orientation had a significant effect such that prosocial individuals allocated more chips to their partner than did the proself individuals. Additionally, there was a significant effect of prime, such that the religious primes led to higher allocations to the other than did the neutral primes, which in turn led to higher allocations to the other than did the business primes. These effects were moderated by self-focus, however. First, self-focus increased the extent to which low-consistency individuals acted in accordance with their dispositional social value orientation. Second, self-focus decreased the effect of the priming manipulation on behavior. Hence, self-focus elicited prior to the prime increased the effect of dispositional self-conceptions on behavior and decreased the effect of primed stereotype content on behavior.

These types of effects are consistent with the active-self perspective. More precisely, activation of one's chronic individual self-concept prior to reception of the prime should lead to a reduction in the biasing effects of the prime. If primes operate, at least in some cases, by the activation of biased contents that are perceived as part of the self, then activation of one's longstanding self-concept prior to reception of the prime should interfere with this biasing effect. To the extent that the chronic, personal self-content is highly accessible prior to the prime, assimilation to situationally activated material should be minimized.

Integration of the Prime With the Self
In contrast to the research just reviewed, other research indicates that activation of the self can increase the magnitude of priming effects. In these studies, however, the self is activated concurrently with the primed content and serves to foster the formation of linkages between the primed content and the self. These studies show that self-prime linkages can increase the magnitude of priming effects.

For example, research by Fenigstein and Levine (1984) showed that the effect of a prime on individuals' interpretations of fictional scenarios can depend on the extent to which the prime is coactivated with the self. In one experiment, participants wrote stories containing either causal words or neutral words. Additionally, the stories were either to contain pronouns related to the self (e.g., me) or not. Participants then read a series of fictional scenarios in which they were to imagine themselves as actors. Results indicated that participants attributed a greater causal role to themselves in the scenarios when primed with the causal words, but only when the causal words were coactivated with the self. The researchers argued that self-attention facilitates access to self-related knowledge and that this can increase the processing of information in self-relevant terms.

Wheeler, Jarvis, and Petty (2001) showed that self-linkage can also increase the magnitude of the effects of primes on behavior. In these experiments, non–African American participants were randomly assigned to write an essay about a day in the life of a college student. Half of the participants were randomly assigned to write about a day in the life of Erik Walker, whom most participants

assumed was White. The other half of the participants was randomly assigned to write about a day in the life of Tyrone Walker, whom most participants assumed was African American. They were subsequently given a difficult mathematical test. Results indicated that participants performed more poorly on the test when they had previously written about Tyrone versus having written about Erik. The lowered test results of individuals who wrote about Tyrone were not observed equally among all participants, however. Test performance decrements were observed only among those individuals who spontaneously wrote about Tyrone from the first-person perspective. That is, those participants who linked the negative out-group performance stereotype to the self exhibited the performance decrements.

Using an individual-differences approach, Hull et al. (2002) demonstrated that individuals who are high in private self-consciousness tend to exhibit larger prime-to-behavior effects than do those low in private self-consciousness. They argued that these results occurred because individuals high in private self-consciousness are those who are most likely to spontaneously process information in self-relevant ways. Because high private self-consciousness individuals may, under some circumstances, spontaneously form more or stronger prime–self linkages, they can exhibit larger behavioral changes after primes than low private self-consciousness individuals.

Thus, a number of studies are consistent with the notion that nonconsciously instigated behavior depends on the extent to which the primed content is associated with the self-concept. Individuals whose self-concept is more likely to include or encompass the activated constructs as part of the self exhibit larger effects.

In the above examples, a link between the self and the primed content is an antecedent to the assimilative effects of a prime. It may also be useful to think of such an integration of self and prime as a consequence of the stereotype activation, which may of course be moderated by the initial linkages between self and prime. In one study examining this, we (DeMarree, Wheeler, & Petty, 2004) relied on a paradigm used in research on interpersonal relationships (Aron, Aron, Tudor, & Nelson, 1991) and social identity (Smith & Henry, 1996). Specifically, Aron et al. (1991) postulated that our mental representations of significant others are incorporated to some extent into our own self-schemas. Using a modified *me/not me* reaction time task based on Markus's (1977) schematicity measure, they found that people were quicker to respond to traits that matched both the self and the relationship partner compared to those traits that differed between the self and relationship partner. This pattern of responding was taken as evidence of overlap in the representation of the self and the relationship partner. Parallel findings have indicated that our social groups can also be incorporated into our self-concept (Aaker & Lee, 2001; Coats, Smith, Claypool, & Banner, 2000; Smith & Henry, 1996). If primed stereotypes are incorporated into the active self-concept, we should expect to find a similar pattern of results. Participants who incorporate an activated stereotype into the self-concept would respond more quickly to self-descriptive (i.e., *me*), stereotype-relevant words and slower to nonself descriptive (*not me*), stereotype-relevant words, compared to control-prime participants.

The task DeMarree et al. (2003) used was similar to those used previously (e.g., Aron et al. 1991), except that it was preceded by an African American prime

(either a scrambled sentence task [see Srull & Wyer, 1979] or the Tyrone vs. Eric essay prime described earlier). For the reaction time task, participants had to indicate whether a word flashed on the screen was self-descriptive or not by pressing either the "me" or the "not me" key. Some of these words were related to the African American stereotype as indicated by previous research (e.g., Devine, 1989). A pattern indicative of the "inclusion of the stereotype in the self" would be faster responding when endorsing stereotype-relevant words (*me* responses), and slower responses when rejecting these words (*not me* responses) when primed with the African American stereotype than when not primed. Correcting for response times to stereotype-irrelevant traits, we found a significant Prime × Self-Descriptiveness (*me/not me*) interaction in the predicted pattern (see Figure 11.2). Interestingly, the effect was in equal part due to the slowing of the *not me* responses and the speeding of *me* responses among primed participants compared to control-prime participants (DeMarree et al., 2004). This is critical, because the slowing of *not me* responses reduces the plausibility of simple accessibility-based alternatives, which would predict faster responding—regardless of the self-descriptiveness of the words—because of the ease with which these words are processed.

Assimilation to Situational Selves

Many priming stimuli have idiographic associations for individuals. For example, being primed with your own mother's name could activate self-information in you that would differ from the type of information activated in someone else who was not acquainted with your mother. Research in this domain suggests that significant-other exemplars can activate the behaviors, goals, and self-concept information that are associated with the individual (Baldwin, 1992).

For example, the activation of significant-other exemplars can result in the activation of goals one has toward that person (Fitzsimons & Bargh, 2003). A prime of one's spouse could activate the goals of intimacy and helpfulness if these are one's goals toward one's spouse. Additionally, significant-other exemplars can activate that exemplar's goals for oneself (Shah, 2003). For example, if Hank's
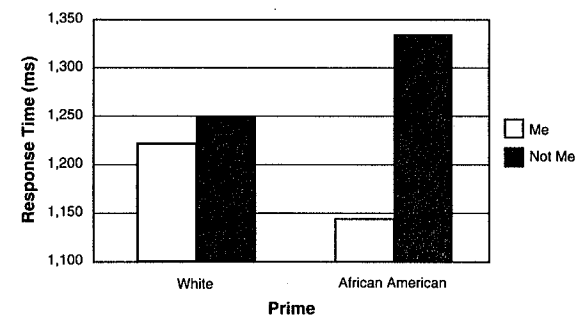
FIGURE 11.2. Response latencies for endorsed and nonendorsed traits following a stereotype prime. Data from DeMarree et al. (2004).

mother always insisted that he be a high achiever, achievement-related goals may be salient to Hank after being primed with his mother's name.

Additional types of information could also possibly be activated. For example, a significant-other exemplar could activate that exemplar's own goals (e.g., "She wants to be more empathetic"), one's idiosyncratic associations with that exemplar (e.g., "I proposed to her after that great concert"), or one's behavioral tendencies when with that person (e.g., "She always makes me stutter").

Although these different activated elements could frequently be congruent, they could sometimes be in competition (e.g., when one person desires intimacy that the other does not). Given the wide array of possible behavior-relevant information that could be activated, the potential for conflict is likely to be nontrivial. It is possible that one would be most likely to act congruently with the most accessible or most applicable associations with that exemplar (see Higgins, 1996). In some situations, though, competing behavioral tendencies could be both highly accessible and applicable. For example, after being primed with a competitive friend with whom one would like to be cooperative, the concepts of competition and cooperation might be both highly accessible and applicable to the same behavioral situation.

It is possible that behavior in such situations would be driven by the portions of the self-concept that are associated with the exemplar (see, e.g., Baldwin, 1992). Significant-other exemplars are likely to be linked to the self-representation in memory along with the behavioral patterns and scripts that are associated with interactions with that person (see Andersen & Chen, 2002). Hence, when one's mother becomes salient, so too could one's self when with mother (e.g., Ogilvie & Ashmore, 1991).

Consistent with this idea, evidence suggests that the behavioral effect that occurs following a significant-other exemplar prime depends on the precise relationship one has with the exemplar. For example, activation of an exemplar's goals for oneself occurs only when one is close to the exemplar (Shah, 2003). One could be more likely to behave or wish to behave congruently with the goals of an individual to the extent that one is close to that individual. Alternately, individuals could be close to each other to the extent that their behavior and goals are compatible.

Interestingly, research on transference has shown that these effects can also emerge when an exemplar is not a significant other but merely resembles a significant-other exemplar. The similar features of an unknown person can activate the representation of the known person, which can in turn affect the goals and perceptions of the perceiver. For example, Andersen and colleagues have shown that transference can affect perceptions of a person who resembles a significant-other exemplar (e.g., Andersen & Baum, 1994), as well as affecting one's goals and self-representations. Motivations to be close to or distant from a new person can be predicted on the basis of the person's resemblance to a personally relevant individual that one has such motivations toward (Hinkley & Andersen, 1996). When a novel person resembles a significant other to whom one wishes to be close, the motivation to be close to the novel individual is engaged. When a novel person resembles a significant other from whom one wishes to be distant, the

motivation to be distant from the novel individual is engaged (see Andersen & Chen, 2002, for a review of these types of findings).

Changes in the active self-concept have also been shown in a transference paradigm. Hinkley and Andersen (1996) assessed individuals' descriptions of themselves when with significant others and also the descriptions of the characteristics of those significant others. At a subsequent session, participants were exposed to novel individuals who resembled one of the significant others assessed in the initial session. Participants then completed a measure of their current self-concept. Results indicated that participants' self-reported characteristics resembled their reported selves when with the significant others to a greater degree when the novel individuals resembled the significant others.

These findings suggest that many priming effects may have strong idiographic components. Being primed with an individual's name or personal characteristics can lead to differing effects depending on the individuals one knows that have that name or have similar characteristics. Individuals may also have idiosyncratic patterns of activation following exposure to exemplars with whom one has no personal relationship. For example, an individual who has only seen John Travolta's earlier movies may have different associations with his name than an individual who has only seen his more recent work, even if neither individual knows Travolta personally.

Parallel effects could follow from stereotype activation. Although many stereotypes are consensually shared among members of a population, the specific features of the stereotype that are salient upon exposure to a stereotype prime could differ across individuals. For example, individuals who have had positive experiences with African Americans may respond differently to an African American prime than those who have had negative experiences with African Americans.

Hence, although research on significant-other exemplars appears at first to differ in important ways from research on other priming effects, it may in fact share many similarities. Although mental representations of significant-other exemplars could differ in their complexity and accessibility from representations of stereotypes or non-significant-other exemplars, all types of constructs are potentially capable of activating behavioral representations and goals that differ idiographically. Additionally, both could work by affecting the active self.

Individual-Differences Evidence for the Active-Self

View   Work from our own laboratories has begun to examine an additional self-based prediction, namely that the effects of primes on judgment and behavior should be strongest among those whose selves are most likely to be influenced by subtly primed material and who consistently rely on their self-conceptions in guiding behavior. There is one individual-differences variable that plausibly relates to both the tendency to have one's implicit or explicit self-representations shaped by subtly primed constructs, and using one's self-representation to direct behavior.

This individual difference is referred to as *self-monitoring* (Snyder, 1974). Self-monitoring concerns the extent to which individuals deliberately modify their behavior to meet explicit social demands. High self-monitors are social chameleons

who are not troubled by inconsistency between their attitudes, traits, and behaviors. Low self-monitors, on the other hand, look inward and rely heavily on their attitudes, traits, and beliefs to guide their actions. They display high levels of congruence between their attitudes and behaviors (Snyder & Swann, 1976; Snyder & Tanke, 1976), inner states and self-presentation (Ickes, Layden, & Barnes, 1978) and between their personality characteristics and behaviors (Lippa, 1978). As Snyder and Campbell (1982) put it, "To live one's life according to the principled theory of self ... would require low-self-monitoring individuals to pay serious attention to their own internal states, dispositions, and personal characteristics in order to guide their social behavior" (p. 191).

Additionally, some evidence suggests that low self-monitors are more likely to change their behavior and self-perceptions in response to information perceived to be dispositionally diagnostic. For example, low self-monitors exhibit more attitude change after a freely chosen counterattitudinal behavior than do high self-monitors (Snyder & Tanke, 1976), and they evince greater behavioral change in response to false feedback regarding their dispositional characteristics (Fiske & von Hendy, 1992). Accessible mental contents could provide an additional piece of information that could be perceived as relevant and diagnostic with respect to the self. Because of their consistency between inner states and behavior and because low self-monitors' self-conceptions are more responsive to ostensibly diagnostic self-information, they could show larger changes in the self-concept following a prime than would high self-monitors.

Hence, low self-monitors are more likely to adjust their self-conceptions based on dispositionally diagnostic information, attend to their inner states, and use their self-conceptions as guides to their behavior. Therefore, primes are plausibly more likely to influence the active self-conceptions (either implicit or explicit) of low self-monitors, and furthermore, these biased self-conceptions should have greater effect on the actions taken by low self-monitors, who use such representations to guide their social behavior. In contrast, high self-monitors are less likely to look internally, less likely to confuse subtly activated mental contents with the self, and less likely to rely on internal cues to guide their actions.

In an initial test of this hypothesis (DeMarree, Wheeler, & Petty, 2004), participants wrote essays about a day in the life of Tyrone (vs. Erik) Walker to prime the African American stereotype (or not; see Wheeler et al., 2001). Following the essay task, participants completed an implicit aggression measurement task that ostensibly concerned subliminal language perception. Participants were told that a word would be flashed on the screen so quickly that they would not be able to see it. After the presentation of the word, they were then given a list of four words and were to select the word that matched the word that was flashed. They were told to select "a word that feels similar in meaning to the feeling you experience while the word is being flashed." None of the subliminally presented stimuli were actually words. Instead, we presented letter strings (e.g., *aggrimely*) that resembled all four of the response options in appearance but had one or more letters different from all of the response options (e.g., *aggressive, aggregate, agriculture, agreement*). Half of the trials were target trials, in which one of the four response options was an aggression-relevant word (e.g., *aggressive, beat, angry*).

Following this task, we included several questions targeted to tap aspects of participants' identity that might be consistent with the African American stereotype. These items were created based on existing literature and included items such as the number of hours they study on an average week, their high school grade point average, and the time they wake up each morning. Based on a maximum-likelihood factor analysis, these measures were standardized and recoded, where necessary, and were averaged to create a single index of African American identity. Because aggression is an element of the African American stereotype (Chen & Bargh, 1997; Devine, 1989), we expected low self-monitors would feel more aggressive and be more likely to perceive these aggressive feelings and thus would select more aggression-relevant stimuli following the Tyrone prime than following the Erik prime. High self-monitors, on the other hand, should be less likely to perceive any differences in their feelings of aggressiveness and thus should be less likely to show this assimilation pattern. A similar pattern of findings on the identity items would also indicate that low self-monitors feel more like a stereotypical member of the primed category.

We submitted these two indices to a Prime × Self-Monitoring multivariate analysis of variance, treating self-monitoring as a continuous variable that was allowed to interact with prime. The predicted Prime × Self-Monitoring interaction emerged, such that low self-monitors displayed greater African American identity following the Tyrone prime than following the Erik prime, and no such effect was observed among high self-monitors. Looking at these indices separately, there was a significant interaction on the aggression measure such that there was an assimilative effect of prime among low, but not among high, self-monitors (see Figure 11.3). Analysis of the identity index indicated a marginally significant interaction, such that low self-monitors who wrote about Tyrone reported more stereotype-consistent self-characteristics than did those who wrote about Erik; the opposite was the case for high self-monitors (DeMarree et al., 2003). Hence, participants' explicitly reported self-characteristics became more similar to the characteristics suggested by the prime, but only when they were low in self-monitoring.
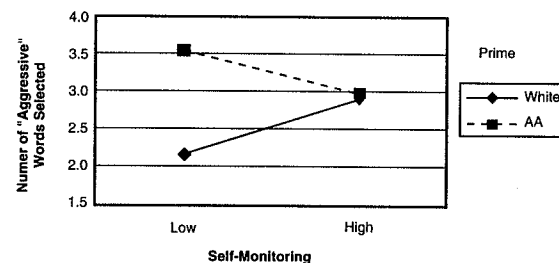

FIGURE 11.3. Aggression scores by prime and self-monitoring (±1 SD of self-monitoring). AA = African American. Data from DeMarree et al. (2004).

To extend these findings, we examined whether moderational effects for self-monitoring could be obtained using a self-schema matching persuasion paradigm in which elaboration is itself an indirect indicator of the self-concept (Petty, Wheeler, & Bizer, 2000; Wheeler, 2002). In this paradigm, advertisements are framed to match or mismatch a specific trait or self-characteristic of the recipient (see Petty et al., 2000). Manipulated orthogonally to the message frame is the quality of the arguments in the message body. Research using this type of paradigm has shown that individuals elaborate more on messages that match aspects of their self-conceptions than messages that mismatch their identities (e.g., Petty et al., 2000; Wheeler, Petty, and Bizer, in press). We sought to replicate these effects, but using primed identity characteristics rather than chronic identity characteristics. If primed identity characteristics bias self-perceptions, then individuals should engage in greater elaboration of messages matching the primed identities, rather than messages matching their chronic identities. These effects should be particularly likely to occur among low self-monitors, who are most likely to have their self-conceptions influenced by primes and to act consistently with their identities.

In this experiment (Wheeler, DeMarree, & Petty, 2004), White participants were primed by means of a scrambled sentence task. Embedded within the scrambled sentences were words relevant (or not) to the African American stereotype. Following the priming task, participants viewed an ad framed to match either an African American or White identity by including names of rap and rhythm-and-blues artists or rock artists, respectively, in the background image of an advertisement for a CD player. Argument quality was manipulated orthogonally to the message frame.

If primes temporarily bias self-perceptions, participants could perceive the African American ad to be more self-relevant following activation of the African American stereotype and exhibit greater information processing as a result. This pattern was observed among low self-monitors (see Figure 11.4).[2] They distinguished more between the strong and weak arguments in the matched ads than in the mismatched ads, regardless of whether there was a "real" match (White control-primed participants viewing White ads) or primed match (White African American-stereotype-primed participants viewing the African American ads). High self-monitors did not exhibit a matching effect. This study is consistent with the notion that the primes were incorporated into participants' identities and that the ads framed to match the activated stereotype were seen as self-relevant. Additionally, it provides further support that the effect of primes is dependent on the extent to which individuals rely on internally accessible information to guide behavior. In this case, the primed identities led to increased processing of primed-matched messages, but only among low self-monitors, who are likely to act consistently with their internal states.

Contrast Effects on Behavior

In the prior section, we demonstrated that these assimilation effects—both on self-perceptions and on behaviors such as information processing—were more evident for individuals who linked the prime content to the self and for low self-
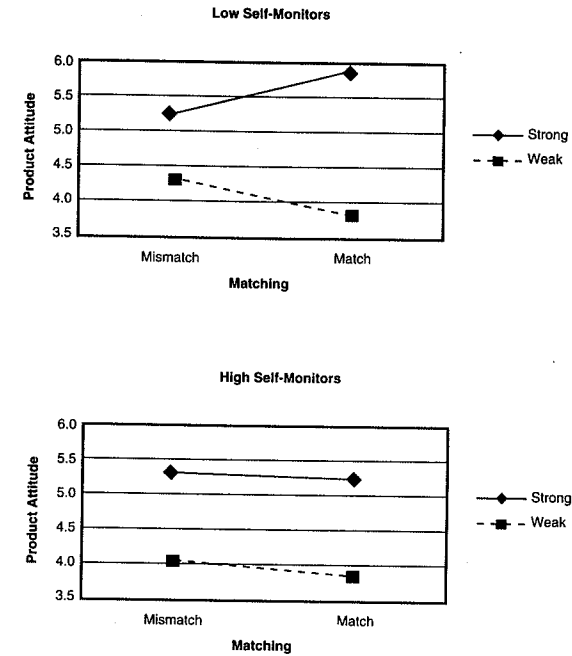
FIGURE 11.4. Attitude reports as a function of matching condition, argument quality, and self-monitoring (±1 SD of self-monitoring). Data from Wheeler et al. (2004).

monitoring individuals. This suggests that the priming-to-behavior assimilation effects involve some influence on the active self-concept. It is also important to note, however, that contrast effects have been demonstrated in this literature under some circumstances.

One relevant stream of research was reported by Dijksterhuis et al. (1998). In a series of studies, they showed that although the activation of stereotypes (e.g., *supermodel*) can lead to assimilative behaviors (acting less intelligently), the activation of stereotype exemplars (e.g., Claudia Schiffer) can lead to contrastive behaviors (acting more intelligently). How is it that such effects occur? The authors argued that contrast resulted because the extreme exemplars provided highly discrepant and concrete comparison targets. When presented with Claudia Schiffer, one may think, "I'm a rocket scientist compared to her!" Because stereotypes are more diffuse, the authors argued, they are less likely to act as a comparison point and, hence, less likely to elicit contrast. This is the same logic applied to assimilation versus contrast effects in social judgment (e.g., see Stapel & Koomen, 2001b; Stapel, Koomen, & van der Plight, 1997).

Notably, the contrast account can also involve the self. In this case, highly discrepant exemplars may lead to social comparison and subsequent perceptions of the self that contrast from the exemplar's characteristics. Note that, according

to this account, even though the exemplar still activates its category membership associations (e.g., Claudia Schiffer activates *stupid*), these associations alone do not drive behavior. Rather, the prime-induced changes in self-perception (e.g., "I am smart") account for the observed behavioral effects (e.g., improved performance on trivia questions).

In Experiment 3, Dijksterhuis et al. (1998) provided intriguing evidence consistent with the notion that self-change could be responsible for the corresponding effects on behavior. In this experiment, participants were primed with a smart stereotype (*professor*) or a smart exemplar (Albert Einstein). Following the priming procedure, participants completed a lexical decision task in which they judged letter strings as either words or nonwords. The words used in this task were neutral or related either to intelligence or to stupidity. Immediately preceding each target to be judged, participants were subliminally primed with one of two sets of words: self-related words (e.g., *I* or *me*) or neutral words (e.g., *it*). Results indicated that the professor stereotype prime facilitated responses to intelligence-related words. A rather different pattern was shown for exemplar primes. Responses to intelligence-related words were facilitated following activation of Einstein, but so too were responses to stupidity-related words when preceded by a self-relevant prime.

Two features of this experiment are particularly noteworthy. First, the exemplar prime of Einstein subsequently activated intelligence and stupidity, but the resulting behavior reflects that of the feature uniquely tied to the self (i.e., stupidity, because people would feel less intelligent than Einstein).[3] Hence, these activation patterns suggest a bias in the self-concept resulting from the prime, and they are consistent with the self as an executive initiator of action. That is, information activation would have guided behavior, but the direction of the behavior would have presumably been driven by the information tied uniquely to the self. Second, this research suggests that patterns of self-activation need not always be assimilative. Under some situations, such as those promoting comparison to a highly discrepant exemplar, contrastive self-related information can be activated.

As reviewed in the previous section, research using significant-other exemplars has often shown assimilation effects, rather than contrast effects. However, significant-other and non-significant-other exemplars need not always show assimilation and contrast effects, respectively. For example, assimilation to non-significant-other exemplars can lead to assimilative self-perceptions when the characteristics of the exemplar seem achievable (Lockwood & Kunda, 1997, 1999) or when social self-construals are activated (Stapel & Koomen, 2001a). Similarly, contrast from the characteristics of the individual is possible for each type of exemplar. For example, individuals could perform poorly on a test following any very smart exemplar prime, whether it is one's Nobel Prize–winning brother or Einstein. When the characteristics of a significant-other exemplar are sufficiently salient and extreme, they could exert the same influence on behavior as the characteristics of other extreme exemplars. Whether assimilation or contrast to an exemplar occurs depends on a wide variety of factors (for reviews, see Markman & McMullen, 2003; Mussweiler, 2003; Stapel & Koomen, 2000), but both significant-other and non-significant-other exemplars could vary along these factors.

However, as already discussed, significant-other and non-significant-other exemplars can sometimes differ in the types of content that they activate in memory. In the significant-other exemplar assimilation effects reviewed previously, the assimilation was to the goals of the exemplar for oneself or the goals of one toward that exemplar, not to the characteristics of the exemplar himself or herself. However, contrast from these types of goals could also occur. For example, if one has habitually rejected another's goals for oneself (e.g., a punk teenager's rejection of his mother's desire for him to be a preppie), contrast from the mother's goals for him could result. To the extent that a non-significant-other's goals are salient and highly discrepant from one's own, contrast from these goals could also possibly result. For example, a Ku Klux Klansman primed with Martin Luther King Jr. might act more racist, therefore contrasting King's goals of racial equality.

Although these predictions are necessarily speculative due to lack of data, there is no reason why primes of significant-other and non-significant-other exemplars would necessarily always lead to different effects. Although these two types of exemplars could naturally vary both in their typical extremity and in the nature of the associations they activate, to the extent that these are controlled, the effects could be comparable.

CONCLUSIONS

In summary, the active-self perspective provides a flexible means for predicting and understanding how the activation of stereotypes, traits, and exemplars will affect behavior in multifaceted ways. Although the automatic behavior accounts initially appeared to imply that assimilation would always occur in response to activated constructs, the working-self perspective presented here does not. Assimilative, contrastive, or relational components of the self could be activated after exposure to primes. Self-representations may play a role in directing behavior by determining the types of emotions, perceptions, goals, and behavioral representations that are activated and executed and, in this sense, could provide some insight into the selection, direction, and magnitude of behavioral change that results from construct activation.

Although the behavioral effects we reviewed here were all presumably congruent with the changed self-conception, they need not always be. We believe that behavioral priming effects can result from multiple mechanisms and that behavior does not invariably follow directly from accessible behavioral representations, motivational representations, or self-representations (Wheeler & Petty, 2001). Myriad automatic and controlled processes can intervene to modify or override the behavioral propensities set in motion by the prime. These intervening processes have the potential to amplify or reverse the tendencies induced by the prime (Markman & McMullen, 2003).

For example, as discussed elsewhere (Wheeler & Petty, 2001), individuals may attempt to counteract undesired behaviors (e.g., acting stupidly), at least when they are aware of the biasing agent or its effects on behavior. The ease with which the behaviors can be modified is likely to depend on the nature of the behavioral

domain. For example, stereotype-induced performance decrements are often exacerbated in the face of attempts to avoid them (Steele & Aronson, 1995).

The active self formulation has unique potential to integrate these diverse mechanisms conceptually. Understanding the types of activated self-representations and individuals among whom they are influential lends insight into which behavioral representations and goals will be activated subsequently and also perhaps into how individuals will perceive others or their surroundings. This account is not intended to be a substitute for the ideomotor or auto-motive formulations; presumably all behavior is preceded by the activation of behavioral or motivational representations. Instead, the working self formulation provides a basis for predicting which types of motivational and behavioral representations will be activated after exposure to social targets. This perspective allows prediction of a broader array of effects than previous main-effect formulations and permits prediction of behavioral reactions in response to rich and multifaceted social primes.

NOTES

1. The assimilative influence of self-relevant stereotypes on behavior has often been explained using another mechanism, stereotype threat (e.g., Steele & Aronson, 1995), though these effects, too, could be explained by ideomotor or the active-self account (see Wheeler & Petty, 2001).

2. The graph depicts the pattern observed using the 25-item Self-Monitoring Scale (Snyder, 1974). Although these means are in the predicted pattern, the three-way interaction achieved conventional significance levels only on the other-directedness subscale. The other-directedness subscale is the most similar to the theoretical construct of self-monitoring (Briggs & Cheek, 1988), and it reflects the degree to which individuals look to others for behavioral guidance, conform to social situations, mask their true feelings, and seek to please others.

3. No behavioral measures were included in this experiment measuring activation patterns. The other experiments in the paper suggest that behavioral contrast (here, acting stupidly) would have been the resulting behavior. Because the measures were not included in the same study, however, it is possible that these activation patterns did not play a mediational role in the direction of behavior.

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