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## Does self-consciousness increase or decrease priming effects? It depends

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### Abstract

Self-consciousness has been shown to both increase and decrease the magnitude of prime-to-behavior effects. In this paper, we decouple the facets of self-consciousness into internal state awareness and self-reflectiveness and show that self-consciousness can be associated with multiple influences on automatic behavior. Specifically, we conducted an experiment demonstrating that increased internal state awareness decreased the magnitude of the prime-to-behavior effect, whereas increased self-reflectiveness amplified the effect. These effects operated independently of self-monitoring and suggest a multiple process approach to understanding prime-to-behavior effects.

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### Introduction

People vary in the extent to which they direct their attention inwardly, and this propensity has myriad consequences for behavior, judgment, and psychological well-being. The tendency to direct attention inwardly is called private self-consciousness and has been the subject of considerable research (see Gibbons, 1990).<sup>1</sup> One of the more recently investigated consequences of self-consciousness concerns its influence on prime-to-behavior effects, a research area now containing over 60 articles (Dijksterhuis, Chartrand, & Aarts, 2007). As an example of such effects, young college students who are subtly primed with the elderly stereotype

subsequently walk more slowly than those not so primed (Bargh, Chen, & Burrows, 1996). Research examining the moderation of these effects by private self-consciousness has yielded inconsistent results. Some research (Hull, Slone, Meteyer, & Matthews, 2002) suggests that prime-to-behavior effects are largest among individuals who are high in private self-consciousness, whereas other research suggests precisely the opposite (Dijksterhuis & van Knippenberg, 2000).

In the present research, we examine the basis for these seemingly contradictory findings and propose a resolution that is based upon a multi-faceted conceptualization of private self-consciousness. Specifically, we argue that two different components of private self-consciousness—internal state awareness and self-reflectiveness—can influence prime-to-behavior effects in different ways. Internal state awareness refers to awareness of one's feelings, thoughts, and physiological states, whereas self-reflectiveness refers to rumination regarding the self. By disentangling these different constructs, we show that each component can exert simultaneous and independent influences on automatic behavior.

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<sup>1</sup> Researchers (e.g., Fenigstein, Scheier, & Buss, 1975) have labeled the dispositional form of this tendency “self-consciousness” and the state form of this tendency “self-awareness.” Because we decompose dispositional self-consciousness into components with similar labels (i.e., internal state awareness and self-reflectiveness), we use the term self-consciousness throughout the article to avoid confusion. The authors thank David Campos for his assistance with data collection.

### *Self-consciousness and priming effects*

As just noted, some research (Dijksterhuis & van Knippenberg, 2000) has shown reduced prime-to-behavior effects among individuals in whom self-consciousness is induced. In one experiment, participants primed with the politician stereotype subsequently wrote longer essays than those not so primed (consistent with the politician stereotype of long-windedness), except when they were seated in front of a mirror. In a second experiment, participants primed with the professor stereotype subsequently answered more trivial pursuit questions correctly than those primed with the soccer hooligan stereotype, but again, not when they were seated in front of a mirror.

The authors suggested that these effects occurred as a result of the increased salience of alternate behavioral cues on the part of individuals seated in front of the mirror. Specifically, they argued that the self-focus induced by the mirror increased the accessibility of participants' personal, idiosyncratic behavioral cues, which overrode the effect of the primed behavioral cues. Hence, individuals in front of a mirror are proposed to have greater awareness of their actual (vs. primed) behavioral propensities. This awareness in turn makes them less susceptible to external influences. This type of account has been generalized to behavioral mimicry effects. Specifically, one possible reason that those with independent self-construals mimic others less than those with interdependent self-construals is that those with independent self-construals are more aware of their internal states and thus are less susceptible to external influences (Dijksterhuis & Bargh, 2001; van Baaren, Maddux, Chartrand, de Bouter, & van Knippenberg, 2003).

Other research has shown increased prime-to-behavior effects among individuals high in private self-consciousness. In this research (Hull et al., 2002), individuals high and low in private self-consciousness, identified using the private self-consciousness scale (Fenigstein et al., 1975), were primed with the elderly stereotype before being surreptitiously timed as they walked a fixed distance. High private self-consciousness individuals replicated the Bargh et al. (1996) pattern—those primed with the elderly stereotype walked more slowly than those not so primed. Low private self-consciousness individuals, in contrast, exhibited no effect of the prime. Three additional experiments indicated that the task performance of high private self-consciousness individuals (relative to that of low self-consciousness individuals) was more influenced by success and failure primes, and that their cardiovascular responses were more influenced by “relax” and “angry” primes. Hence, high private self-consciousness individuals consistently exhibited larger priming effects.

The authors suggested that these effects occurred because high private self-consciousness individuals are more likely to encode information as self-relevant (see Hull & Levy, 1979; Hull, Van Treuren, Ashford, Proppom, & Andrus, 1988). As a result, even outgroup primes (such as the elderly prime for young individuals) influence behavior despite their objec-

tive inapplicability to the prime recipients. Hence, individuals high in private self-consciousness are proposed to engage in self-reflective processing that creates or activates linkages between their self-concepts and the prime content.

### *Facets of self-consciousness*

Why has private self-consciousness led to reduced priming effects in some studies (e.g., Dijksterhuis & van Knippenberg, 2000), but to increased priming effects in others (e.g., Hull et al., 2002)? As is apparent from the accounts above, self-consciousness has been conceived as a multifaceted construct. Hence, it is possible that the effects discussed above were in fact driven by two distinct facets of self-consciousness. If the effects of the mirror manipulation were primarily driven by one facet of self-consciousness (i.e., internal state awareness), whereas the effects of the individual difference measure were driven primarily by a second facet of self-consciousness (i.e., self-reflectiveness), it would suggest that self-consciousness can exert multiple, conflicting influences on prime-to-behavior effects.

The facet of self-consciousness that has been the focus of most research is self-awareness, that is, awareness of one's internal states (e.g., Carver & Scheier, 1981; Duval & Wicklund, 1972; Hull et al., 1988). A number of studies have shown that self-consciousness increases resistance to situational influences (e.g., group pressure or false feedback, Gibbons, Carver, Scheier, & Hormuth, 1979), though situational manipulations sometimes can lead to stronger effects than those obtained with the dispositional scale (Scheier, Carver, & Gibbons, 1979). This greater resistance to situational influence has been postulated to result from private self-consciousness individuals' high awareness of their internal states. Indeed, both dispositional and experimentally induced self-consciousness can increase the extent to which people complete sentences with self-focused phrases (Carver & Scheier, 1978; Davis & Brock, 1975). Consistent with the account provided by Dijksterhuis and van Knippenberg (2000), heightened internal state awareness can make people more willing and able to use their personal characteristics, rather than situational cues, as guides for their behavior (Scheier, Buss, & Buss, 1978).

The self-reflective processing aspect of self-consciousness discussed by Hull and colleagues (2002) has also been supported across numerous experiments (Fenigstein & Levine, 1984; Hull & Levy; Hull et al., 1988). Some research in support of this aspect of self-consciousness has shown that self-consciousness leads to *more* susceptibility to a number of forms of influence. For example, high self-consciousness individuals are more affected by positive and negative feedback (e.g., Hull & Young, 1983; Ickes, Wicklund, & Ferris, 1973). These results are consistent with the idea that high self-consciousness people are processing the feedback in terms of its implications for the self.

Interestingly, these two facets of private self-consciousness (i.e., internal state awareness and self-reflective

processing), in addition to being proposed as theoretical constructs, are assessed by the items in the private self-consciousness scale. Several analyses of the scale have suggested that the two facets load onto separate factors, labeled internal state awareness (ISA) and self-reflectiveness (SR), respectively (Anderson, Bohon, & Berrigan, 1996; Burnkrant & Page, 1984; Mittal & Balasubramanian, 1987; Piliavin & Charng, 1988). Examples of ISA items are “I’m generally attentive to my inner feelings,” and “I’m alert to changes in my mood.” Examples of SR items are “I’m constantly examining my motives,” and “I’m always trying to figure myself out.”

These two subscales, though moderately correlated with each other, often exhibit very different relationships with a number of variables. For example, SR correlates positively with anxiety and depression, whereas ISA correlates negatively with these variables (Anderson et al., 1996). SR correlates negatively with self-esteem, whereas ISA correlates positively (Bernstein, Teng, & Garbin, 1986). The independent relationships of internal state awareness and self-reflectiveness with other variables indicate their separability and suggest that they could also potentially have different patterns of relationships with other outcomes, such as prime-to-behavior effects. If the internal state awareness and self-reflectiveness subscales of the private self-consciousness scale tap into the processes described above (i.e., awareness of self-characteristics and self-reflective processing), then it is plausible that each subscale could predict the simultaneous operation of these different processes in prime-to-behavior effects.

Specifically, to the extent that internal state awareness assesses awareness of one’s actual self-characteristics, individuals who score high on this measure—similar to individuals seated in front of a mirror—should show smaller effects of primes on behavior. On the other hand, to the extent that self-reflectiveness assesses the tendency to relate accessible content to the self-concept, individuals who score high on this measure should show larger effects of primes on behavior. If this were true, it would provide support for the simultaneous operation of the different tendencies hypothesized to operate in previous research, and it would lend new insight into a salient puzzle in the literature.

As noted above, Hull and colleagues utilized the full private self-consciousness scale and found assimilation effects. Notably, they did not report the results for each subscale, and so it is not clear whether the SR subscale was primarily responsible for their results. Following from our interpretation of Hull’s results, it is possible that the SR subscale contributes more to the overall private self-consciousness scale than does the ISA subscale, hence creating a tendency for the overall scale to be associated with assimilation effects.

Research does in fact suggest that SR is more strongly associated with the overall scale than is ISA. SR-loading items typically have greater variances than ISA-loading items (Anderson et al., 1996; Bernstein et al., 1986; Piliavin & Charng, 1988) and they explain more variance in scores

on the overall scale (Bernstein et al., 1986; Piliavin & Charng, 1988). Hence, because SR contributes more than ISA to overall private self-consciousness scores, one would expect that, on average, the overall scale would lead more to assimilation effects than not. In the discussion section, we return to this and other reasons why Hull and colleagues may have obtained assimilation with the full scale.

## Overview

In this experiment, we examined the effect of each subscale of private self-consciousness on the prime-to-behavior relationship. We used as our paradigm a well-known experiment (Bargh et al., 1996 experiment 1) in which participants are primed with rudeness (or politeness) and their delay in interrupting a person is measured as the dependent variable. We expected that we would replicate the behavioral assimilation effect observed in previous research (i.e., faster interrupting when primed with rudeness), but that these effects would be largest among those *low* in internal state awareness and those *high* in self-reflectiveness.

In addition to measuring private self-consciousness, we assessed self-monitoring. This is because self-monitoring has also been shown to moderate prime-to-behavior effects, such that low self-monitors exhibit larger effects (DeMarree, Wheeler, & Petty, 2005). Although self-monitoring and private self-consciousness tend to be uncorrelated (e.g., DeMarree et al., 2005; Lamphere & Leary, 1990; Turner, Scheier, Carver, & Ickes, 1978) and their mechanisms have been postulated to be distinct (see DeMarree et al., 2005; Wheeler, DeMarree, & Petty, 2007), the characteristics of those high in private self-consciousness and those low in self-monitoring share some similarities. For example, both groups of individuals tend to demonstrate consistency between their private attitudes and their public behaviors (e.g., Froming, Walker, & Lopyan, 1982). We therefore wanted to control for any relevant features of self-monitoring that might overlap with those of private self-consciousness. Hence, we expected to replicate previous research showing larger prime-to-behavior effects among low self-monitors, and we expected the ISA and SR effects to be manifest even when controlling for the self-monitoring effect.

## Method

### Participants

Forty-nine Stanford University students and 0 staff members participated in this experiment in exchange for \$7. Four participants were excluded from the analysis because they suspected that the real purpose of the study involved measuring how quickly they interrupted the experimenter. The data from the remaining 45 participants (14 men, 31 women) were retained in the final sample. Each participant was randomly assigned to one of two

experimental conditions: rudeness prime ( $n = 23$ ; 6 men, 17 women) or politeness prime ( $n = 22$ ; 8 men, 14 women).

### Materials and procedure

Participants arrived at the laboratory individually and were escorted to a room containing a computer. All materials for the first part of the experiment were presented using MediaLab software. Participants read that the objective of the experiment was to investigate the relationship between personality characteristics and language usage. They then completed the self-monitoring scale, the private self-consciousness scale, and the subliminal priming task in that order. (See Table 1 for the correlations between the measured independent variables, including gender.) Upon completion of the priming task, the computer instructed participants to find the experimenter in the room down the hall so that they could begin the next part of the study. A confederate, who was talking with the experimenter, measured the amount of time that participants took to interrupt the conversation. This served as the dependent variable. Finally, participants completed a filler task and suspicion probes. All participants were fully debriefed at the end of the experiment.

### Self-monitoring scale

The 18-item self-monitoring scale, developed by Snyder and Gangestad (1986), assesses the extent to which people are motivated to change their behavior in response to situational cues. High self-monitors tend to agree with items such as, "In different situations and with different people, I often act like very different persons." Low self-monitors, in contrast, tend to endorse items like, "My behavior is usually an expression of my true inner feelings, attitudes, and beliefs." We administered the scale in true–false format and assigned one point to each response consistent with high self-monitoring (theoretical range = 0–18;  $\alpha = .59$ ).

### Private self-consciousness scale

All participants completed Fenigstein et al.'s (1975) private self-consciousness scale, in which they indicated their

level of agreement with 10 statements about themselves. These ratings were made on a five-point scale with "strongly disagree" and "strongly agree" as the endpoints. A maximum likelihood factor analysis on the 10 items, using varimax rotation, yielded the same solution as that of Mittal and Balasubramanian (1987): a four-item self-reflectiveness factor and a four-item internal state awareness factor. The loading of each item on its relevant factor was at least .35. Hence, we averaged the four internal state awareness items (e.g., "I am alert to changes in my mood") and the four self-reflectiveness items (e.g., "I'm always trying to figure myself out") to create two separate subscales ( $\alpha = .71$  for ISA,  $\alpha = .75$  for SR).

### Subliminal priming task

The priming manipulation in this study was a lexical decision task, which consisted of 90 trials. On each trial, participants were subliminally exposed to a prime word for 17 ms, followed by a backward mask (e.g., *HENKOS*) for 225 ms. Then a prime-unrelated word (e.g., *caterpillar*, *rain*) or non-word (e.g., *xoonloper*, *flaj*) appeared on the screen, and participants pressed a key on the computer to indicate whether or not it was a real word. Following the procedure of Bargh and colleagues (1996, Experiment 1), all of the prime words were related to either rudeness (e.g., *interrupt*, *bother*, *disturb*) or politeness (e.g., *discreetly*, *respect*, *considerate*), depending on experimental condition. There were 15 prime words in each condition, and each word was presented six times.

### Dependent measure

The dependent measure in this study was adapted from Bargh et al. (1996, Experiment 1). After participants completed the priming manipulation, they walked down the hall to the room in which the experimenter said that she would be waiting. The door to the room was half open, and from the outside, the participant could see the experimenter seated at a table, engaged in conversation with a confederate. The confederate, who was not visible to the participant, held a stopwatch under the table so that he could time the number of seconds that elapsed before the participant interrupted. The experimenter appeared to be explaining the details of a study that she had run the previous month, and the confederate—posing as her research assistant—asked her several questions throughout the explanation.

As soon as the participant alerted the experimenter to his/her presence by either saying something (e.g., "Excuse me, I'm done with the computer part") or making noise (e.g., knocking on the door, clearing his/her throat loudly), the confederate stopped timing. If the participant did not interrupt within 10 min, the confederate was instructed to say, "Wait a minute, don't you have a participant coming in to do the next part of the study?" At that point, the experimenter stood up and apologized to the participant for making him/her wait. She then told the confederate that she needed this room for the experiment, but that they

Table 1  
Correlations between measured variables

	Self-monitoring	Internal state awareness	Self-reflectiveness	Private self-consciousness
Self-monitoring	—			
Internal state awareness	-.190	—		
Self-reflectiveness	-.076	.423**	—	
Private self-consciousness (full scale)	-.129	.775**	.865**	—
Gender	-.084	.427**	.304*	.441**

\*  $p < .05$ .

\*\*  $p < .01$ .

could resume their conversation later on. Next, she gave the participant a short anagram task to bolster the cover story that the study was about personality and language. Once the participant finished this task, he/she was probed for suspicion and debriefed.

## Results

We hypothesized that assimilation to the prime (i.e., taking less time to interrupt in the rudeness condition than in the politeness condition) would be most pronounced among participants low in self-monitoring, low in internal state awareness, and high in self-reflectiveness. Further, we expected each interaction and assimilation effect to hold after controlling for the other two interactions.

To test these predictions, we first performed a square root transformation on participants' interruption times because the distribution was positively skewed (skewness = .919,  $SE = .354$ ; Tabachnick & Fidell, 1996). The transformation eliminated this skew (skewness = .626,  $SE = .354$ ). We then followed Aiken and West's (1991) recommended procedures for multiple regression. We dummy-coded the condition variable (politeness prime = 0, rudeness prime = 1), and we mean-centered participants' self-monitoring, internal state awareness, and self-reflectiveness scores to reduce multicollinearity concerns. In the first block of the analysis, we regressed interruption time (transformed) onto condition, self-monitoring, internal state awareness, and self-reflectiveness. In the second block of the analysis, we regressed interruption time onto all main effects, the condition  $\times$  self-monitoring interaction term, the condition  $\times$  internal state awareness interaction term, and the condition  $\times$  self-reflectiveness interaction term.

As predicted, three effects emerged: the condition  $\times$  self-monitoring interaction ( $\beta = .395$ ),  $t(37) = 2.14$ ,  $p = .039$  (see Fig. 1), the condition  $\times$  internal state awareness interaction ( $\beta = .577$ ),  $t(37) = 2.49$ ,  $p = .017$  (see Fig. 2), and the condition  $\times$  self-reflectiveness interaction ( $\beta = -.435$ ),  $t(37) = -1.96$ ,  $p = .058$  (see Fig. 3).<sup>2</sup> To decompose the interactions, we recomputed each variable (self-monitoring, internal state awareness, and self-reflectiveness) one standard deviation above and below the sample mean. We then probed each interaction by including each recomputed predictor and its interaction with condition in regression analyses with all other variables mean-centered (e.g., we probed the effect of self-monitoring at 1  $SD$  above the mean when internal state awareness and self-reflectiveness



Fig. 1. Interruption times as a function of condition (politeness vs. rudeness) and self-monitoring ( $\pm 1 SD$ ).

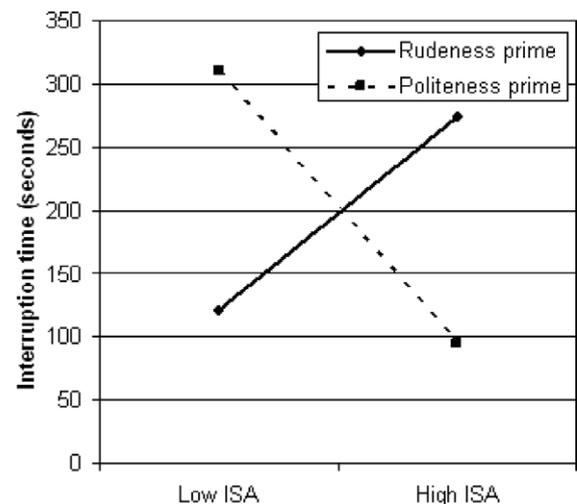


Fig. 2. Interruption times as a function of condition (politeness vs. rudeness) and internal state awareness ( $\pm 1 SD$ ).

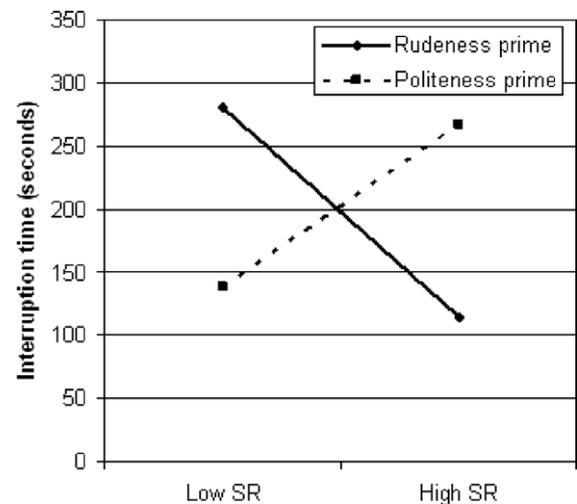


Fig. 3. Interruption times as a function of condition (politeness vs. rudeness) and self-reflectiveness ( $\pm 1 SD$ ).

<sup>2</sup> To facilitate comprehension, raw (non-transformed) interruption times are presented in the figures. Also, in a separate analysis, we regressed interruption time onto condition, self-monitoring, the full private self-consciousness scale, condition  $\times$  self-monitoring, and condition  $\times$  private self-consciousness. Though the condition  $\times$  self-monitoring interaction was marginally significant, ( $\beta = .326$ ),  $t(39) = 1.68$ ,  $p = .10$ , there was no interaction between condition and private self-consciousness ( $\beta = .003$ ),  $t(39) = .014$ ,  $ns$ .

were mean-centered), resulting in six parallel regression analyses (see Aiken & West, 1991).

The results of these analyses confirmed our hypotheses. Replicating previous findings (DeMarree et al., 2005; Wheeler, DeMarree, & Petty, 2005), low self-monitors showed an assimilation pattern to the prime ( $\beta = -.39$ ),  $t(37) = -1.84$ ,  $p = .07$ , whereas high self-monitors did not ( $\beta = .29$ ),  $t(37) = 1.33$ ,  $p > .19$ . Similarly, decomposition of the condition X internal state awareness interaction revealed an assimilation effect among participants low in internal state awareness ( $\beta = -.47$ ),  $t(37) = -2.11$ ,  $p = .04$ , and a tendency toward contrast among participants high in internal state awareness ( $\beta = .38$ ),  $t(37) = 1.69$ ,  $p < .10$ . Decomposition of the condition X self-reflectiveness interaction revealed an assimilation pattern among participants high in self-reflectiveness ( $\beta = -.37$ ),  $t(37) = -1.70$ ,  $p < .10$ , but no effect among participants low in self-reflectiveness ( $\beta = .27$ ),  $t(37) = 1.24$ ,  $p > .22$ .<sup>3</sup>

## Discussion

The present experiment provided evidence for the idea that the different facets of private self-consciousness, as measured by two subscales (internal state awareness and self-reflectiveness), can be associated with different influences on prime-to-behavior effects. Specifically, we obtained interactions for ISA and SR with the prime condition that were in opposite directions. Consistent with the processes postulated by Dijksterhuis and van Knippenberg (2000), heightened internal state awareness can decrease the magnitude of prime-to-behavior effects. Consistent with the processes postulated by Hull and colleagues (2002), self-reflective processing, in which external information is processed as self-relevant, can increase the magnitude of prime-to-behavior effects. The present research shows that both of these processes can operate independently and simultaneously. Moreover, it bolsters the notion that these types of processes are independent of those hypothesized to drive the self-monitoring effects observed in previous research (e.g., DeMarree et al., 2005).

We did not find a moderating effect of the full private self-consciousness scale in this research. This is understandable, given the different effects of its subscales, but it stands in contradiction to the moderated effects found by Hull and colleagues (2002), who used the full scale. In general, the likelihood of showing increased effects (as driven by SR) or decreased effects (as driven by ISA) should depend on

the relative contribution of each subscale to the overall score.

As we reported in the introduction, SR is in fact typically more strongly associated with the overall scale than is ISA. SR-loading items have been shown to have greater variances than ISA-loading items (Anderson et al., 1996; Bernstein et al., 1986; Piliavin & Charng, 1988) and to explain more variance in the overall scale (Bernstein et al., 1986; Piliavin & Charng, 1988). In our sample, this was also the case. In the factor analysis reported above, the SR factor explained 37% of the overall variance, whereas the ISA factor explained only 17%. If we had sufficient power, we may have also revealed a significant assimilation effect of the overall private self-consciousness scale. However, there could be unknown differences that could make the relationships between these three variables vary from sample to sample.

### *Mechanisms of behavioral priming effects*

In addition to revealing interactions consistent with each of the different previously observed effects of self-consciousness on the prime-to-behavior relationship, the present study lends insight into how behavioral priming effects occur. In so doing, it provides further evidence that the self-concept can be an important determinant of the magnitude and direction of these effects (Wheeler et al., 2007). Importantly, this research supports the notion that the self-concept can be involved in multiple processes that, in some cases, have different effects. Specifically, the self-concept can play a role in both increasing and decreasing prime-to-behavior effects. Hence, understanding the precise nature of the involvement of the self-concept is critical to accurately predicting whether it will magnify, diminish, or reverse the assimilation effects that are most typical of this research area.

Although the assimilation results for SR were consistent with the types of processes postulated by Hull and colleagues, there is an additional possible conceptual reason high SR individuals might exhibit larger priming effects. The SR subscale has been linked to ruminative thought, in addition to reflective thought (Trapnell & Campbell, 1999). Rumination sometimes occurs because people do not feel they have confidently reached a conclusion (Martin & Tesser, 1996), and so those prone to rumination may also be those who lack a ready answer to the question, "Who am I?". To the extent that these individuals have weaker self-concepts that are more prone to change, this provides an additional potential reason high self-reflectiveness individuals may be more responsive to primes (see DeMarree & Petty, 2007). In fact, recent research from our labs has shown that other forms of self-concept strength (e.g., certainty, ambivalence, small self-discrepancies) similarly predict resistance to the influence of primed constructs (Wheeler et al., 2007).

Research has focused less on contrast from stereotype primes than on assimilation effects (Wheeler & Petty,

<sup>3</sup> We also ran the above analyses with participants' raw (non-transformed) interruption times as the dependent measure. These analyses produced an identical pattern of interactions ( $\beta = .408$ ,  $t(37) = 2.21$ ,  $p = .033$  for self-monitoring;  $\beta = .556$ ,  $t(37) = 2.40$ ,  $p = .022$  for internal state awareness;  $\beta = -.440$ ,  $t(37) = -1.97$ ,  $p = .056$  for self-reflectiveness). The interactions also remained significant when gender was added as a covariate.

2001), but our data showed a tendency for contrast among those high in ISA. This finding is consistent with other research showing that very high levels of internal state awareness can induce comparison processes (Stapel & Koomen, 2001) and can induce contrast even from primed stereotypes. For example, in one experiment (Schubert & Häfner, 2003), participants were subliminally primed with self (e.g., me) or other (e.g., he) words while explicitly thinking about the stereotype of a professor or hussy. Participants tended to assimilate to the primes in their self-judgments and intellectual performance in the other-prime condition, but when the self was made accessible, self-judgments and intellectual performance contrasted from the implications of the stereotype. Consistent with these results, individuals very high in ISA may chronically have accessible self-concepts and hence may be more likely to engage in spontaneous comparison with even relatively abstract social stimuli such as stereotypes (see also Wheeler & Petty, 2001; Wheeler et al., 2007).

#### Real world implications

In addition to these theoretical implications, the present results have a number of real world implications. One possibility concerns how self-consciousness relates to one's ability to maintain self-stability in the face of external influences. The present research shows that internal state awareness can foster resistance not only to conscious inputs, but even to those that are not in focal awareness. Given the wide variety of stimuli in everyday life that are processed but not attended to, these results suggest that the effects of ISA may extend even further than suggested by previous research. For example, individuals high in ISA may be less susceptible to subtle advertisements or influence strategies, and more skilled at reducing automatic responses to external events (e.g., a frustrating person, a tempting piece of cake). Furthermore, certain practices designed to cultivate ISA, such as mindfulness, may similarly reduce unwanted influence (see Brown & Ryan, 2003).

These results also reinforce the importance of the distinction between different types of self-consciousness for predicting mental health and behavioral outcomes. As noted above, high ISA is typically associated with positive outcomes such as lowered anxiety and depression (Anderson et al., 1996) and higher self-esteem (Bernstein et al., 1986), whereas high SR is typically associated with negative outcomes on these dimensions. The present results demonstrate that high ISA (and low SR) is associated with resistance to automatic behavioral influences, which could in turn promote either positive outcomes (e.g., control over one's actions) or negative outcomes (e.g., resistance to an anti-smoking advertisement). Thus, it is not necessarily the case that high ISA would always predict desired behaviors, and low ISA would always predict undesired behaviors. Instead, whether each facet of self-consciousness is "adaptive" depends on the valence of the behavior under influence.

#### Conclusion

These results further bolster the idea that the self-concept can play an important role in affecting even relatively automatic or non-conscious behaviors (Wheeler, DeMarree, & Petty, 2005). They also support a multiple process conceptualization for such effects (see also Wheeler and Petty, 2001), as they suggest that the same prime can activate different processes that operate in conjunction on the same dependent variable. Specifically, activation of the self-concept can either increase the magnitude of prime-to-behavior effects (as when prime recipients are high in self-reflectiveness) or decrease the magnitude of such effects (as when prime recipients are high in internal state awareness). This research is one initial step toward untangling the complicated web of mechanisms contributing to the relationship between non-conscious primes and behavior.

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