Narratives and Goals
Narrative Structure Increases Goal Priming

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Abstract. Goals are a central feature of narratives, and, thus, narratives may be particularly potent means of goal priming. Two studies examined two features of goal priming (postdelay behavioral assimilation and postfulfillment accessibility) that have been theorized to distinguish goal from semantic construct priming. Across the studies, participants were primed with high achievement, either in a narrative or nonnarrative context and then completed either a behavioral task, followed by a measure of construct accessibility, or a behavioral task after a delay. Indicative of goal priming, narrative-primed participants showed greater postdelay behavioral assimilation and less postfulfillment accessibility than those exposed to the nonnarrative prime. The implications of goal priming from narratives are discussed in relation to both theoretical and methodological issues.

Keywords: narrative, goal priming, Scrambled Narrative Task, communication, social cognition

Narratives are pervasive and powerful. They are found in all cultures, and they are an important psychological tool for structuring and comprehending behavior and experience (e.g., Bruner, 1986; Herman, 2003; Kashima, Peters, & Whelan, 2008). Narratives typically consist of protagonists pursuing goals within a narratively constructed world (e.g., Graesser, 1981; Lichtenstein & Brewer, 1980); narrative comprehension, therefore, "revolves around keeping track of the goals and plans of protagonists" (p. 173; Zwaan & Radvansky, 1998). Kashima and his colleagues (Kashima et al., 2008; Kashima, Gurumurthy, Ouschan, Chong, & Mattingley, 2007) suggested that not only do readers of a narrative process protagonists' goals in order to understand the story, but they may also appropriate those goals as their own. In other words, readers of a narrative may nonconsciously activate the protagonist's goal – and this primed goal may impact their (readers') behavior. To explore the role of the narrative context in goal priming, we considered whether embedding a concept within a narrative increases the likelihood of goal (rather than semantic construct) activation.

Narratives and Goals

When people read narratives or stories they form *situation models* – mental representations of narrative elements and the relations among them (Zwaan, 1999; Zwaan & Radvansky, 1998). Such models go beyond the representations of mere text; they comprise information about space, time, causality, goals, and character (see Zwaan & Radvansky, 1998, for a review). Although each of these dimensions has

received empirical attention, recent work has emphasized the centrality of goals in the formation and organization of situation models. Indeed, many researchers believe that goal structures occupy a focal position in narrative comprehension (see Zwaan & Radvansky, 1998, for a review); in order to fully understand narratives, readers must appreciate how a protagonist's actions relate to their goals (Graesser, Singer, & Trabasso, 1994; Magliano, Zwaan, & Graesser, 1999; Suh & Trabasso, 1993; Trabasso, van den Broek, & Suh, 1989).

A consequence of the centrality of goals for structuring situation models is that information related to salient goals becomes integrated into the model – and is thus rendered highly accessible (Lutz & Radvansky, 1997; Radvansky & Curiel, 1998; Singer & Halldorson, 1996; Suh & Trabasso, 1993; van den Broek & Lorch, 1993). Recent connectionist modeling of causal inferences in text comprehension by Trabasso and colleagues (Langston & Trabasso, 1999; Trabasso & Wiley, 2005) shows that, when people form causal connections between narrative elements, connection-relevant information becomes more accessible. Because goals are central to the causal inferences drawn in narrative comprehension, goal-related information is thus likely to remain accessible throughout the reading experience.

Although there is good evidence that goals are central to narrative comprehension, this does not mean that narratives activate *goal constructs* in readers. One possibility, for example, is that processing goal-relevant information when reading a narrative simply activates semantic concepts related to the goal. Indeed, there is ample evidence of increased accessibility of goal-related information (compared to neutral information) in narrative processing (Al-

brecht & Myers, 1995; Goldman & Varnhagen, 1986; Lutz & Radvansky, 1997; Radvansky & Curiel, 1998; Singer & Halldorson, 1996; Suh & Trabasso, 1993; van den Broek & Lorch, 1993). However, the fact that goal-related information is accessible does not mean that a *goal* has been activated in the reader's mind (Förster, Liberman, & Friedman, 2007). How then do we determine whether narratives prime goal constructs? Recent theorizing (Förster et al., 2007) suggests that to distinguish goals from other cognitive constructs one must examine construct dynamics.

Goal vs. Semantic Priming

Goals have recently been conceptualized as dynamic and malleable knowledge constructs, possessing properties similar to those of more traditional cognitive constructs (Kruglanski et al., 2002). Thus, for Kruglanski and colleagues, goals reside within interconnected associative networks, parts of which may be activated or deactivated depending on contextual input. Consistent with this theoretical position, recent empirical work showed that, much like other cognitive constructs, goals can be primed (e.g., Denzler, Förster, & Liberman, 2009; Förster, Liberman, & Higgins, 2005; and see Förster et al., 2007 for a review), and that activated goals lead to behavioral assimilation (e.g., Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trotschel, 2001; Liberman & Förster, 2000).

Importantly, goals have certain properties that distinguish them from other representational constructs. In a recent review of the goal-priming literature, Förster et al. (2007) outlined seven features of goals that may be used to distinguish them from other cognitive constructs. Important for our purposes is the notion that goal constructs show a specific pattern of activation over time. First, once primed, goals remain accessible and have the potential to influence behavior for some time (e.g., Aarts, Gollwitzer, & Hassin, 2004; Bargh et al., 2001). Second, once a goal is fulfilled, goal-related information is deactivated, becoming less accessible and less likely to influence subsequent behavior (e.g., Denzler et al., 2009; Förster et al., 2005).

These two properties of goal priming distinguish it from semantic priming. First, activated semantic constructs decay rather rapidly in accessibility and potential behavioral influence over time (Higgins, 1996; Srull & Wyer, 1979). Second, if a primed semantic construct is used (e.g., is incorporated into behavior), it should subsequently increase in accessibility and potential influence on behavior (Higgins, 1996).

Two recent studies used these criteria to examine goal priming. Aarts et al. (2004, Study 3) showed that reading a short vignette about a person seeking casual sex activated the goal to seek casual sex in male participants. Male participants read a story in which a man meets a former female colleague in a bar. After reading the story participants were given the opportunity to help a female student (an act deemed, in a pilot study, a viable route to obtaining casual sex). Participants primed with the story helped more than did those in a control condition. Importantly, this increased helping behavior was evident even after a 5-minute delay, suggesting a persistence of construct activation consistent with goal priming.

Denzler et al. (2009) showed that exposure to the concept *aggression* can prime the goal to aggress. Some participants in this study read a scenario in which the protagonist's partner was caught cheating with his or her best friend, and the protagonist had a goal to aggress against the best friend. Results show that reading such a story increased the accessibility of aggression-related words, but that accessibility decreased after participants were able to fulfill the goal to aggress against a specific provocateur. Such postfulfillment deactivation of goal-related concepts is indicative of goal priming.

Although these two studies suggest that stories can indeed prime goals, they leave a number of questions unanswered. Is there something about the narrative context that activates a goal – or would similar information presented in a nonnarrative context also activate a goal? Is it the semantic content of the narrative or the semantic content plus its structure within a narrative context that activates goals? To our knowledge, no study has primed the same semantic information in narrative vs. nonnarrative contexts and directly compared the properties of subsequently activated constructs. Given the centrality of goal-related information to narrative processing, we predicted that identical semantic information is more likely to activate a goal and thus engender postfulfillment deactivation and persistence over time, when it is embedded in a narrative than when it is not.

Pilot Study

In order to test our hypotheses, we needed to construct prime stimuli that were equated in semantic content, but different in narrative structure. To do this, we modified the Scrambled Sentence Task priming technique (SST; Srull & Wyer, 1979). In the SST, participants unscramble groups of words into grammatically correct sentences, some of which contain the concept to be primed. We constructed a variation of this paradigm, the Scrambled Narrative Task (SNT), in which the unscrambled sentences formed a narrative.

To provide a strong test of the dynamics of construct activation and use, we first needed to ensure that the narrative and nonnarrative prime stimuli did indeed prime the target construct relative to control but did not differ from each other in terms of immediate postprime construct accessibility. Any differences in immediate postprime accessibility between narrative and nonnarrative prime conditions would make interpretations of construct dynamics (especially postdelay properties) ambiguous. As such, we conducted a pilot study to test these properties of the primes.

Method

Participants and Design

A group of 87 undergraduate psychology students (68 female, 17 male, 2 not reported) participated in the experiment in partial fulfillment of a course research requirement. This study employed a 3-level (Prime: narrative vs. non-narrative vs. control) single-factor, between-participants design.[1]

Materials and Procedure

Participants completed the study in groups of up to 5 persons. Upon arrival, each participant was given a questionnaire package that contained the priming materials and the dependent measures. Participants first completed the priming task, then a measure of construct accessibility: a word fragment completion task.

Priming Task

The priming manipulation involved a variation on the Scrambled Sentence Task (Srull & Wyer, 1979; see also Bargh, Chen, & Burrows, 1996; Chartrand & Bargh, 1996), which we call the Scrambled Narrative Task (SNT). This task was presented as a language exercise that required participants to construct grammatical four-word sentences out of a series of scrambled, five-word items. There were 28 items in each condition. In the priming conditions, 12 of the 28 items contained words associated with the concept of *high achievement* or *performance* (race, win, compete, athlete, best, competition, achieve, glory, quickly, succeed, master, victory), whereas the other 16 items did not refer to this concept. In the narrative prime (NP) condition, participants completed the SNT. In the SNT, the 28 items were ordered such that they would form a coherent narrative once grammatical four-word sentences had been constructed. The 16 nonperformance items were designed to carry the narrative action while not explicitly priming the target concept. In the nonnarrative prime (NNP) condition, the 28 items did not form a coherent narrative upon unscrambling. To ensure that participants in the NNP condition did not sense a narrative in the unscrambled sentences, even in the absence of strict narrative order, the 16 nonperformance items in this condition were different from those used in the narrative prime condition and were designed explicitly to remove any sense of narrative structure. The 28 items in the control condition did not contain any reference to high achievement (see the Appendix for the experimental stimuli). Participants were presented with all 28 items at once and were instructed to unscramble the items in the order in which they were presented. Participants were carefully monitored to ensure that they complied with the instructions.

Word-Fragment Completion

A word-fragment completion task was presented to participants after the priming manipulation to measure immediate, postprime accessibility (e.g., Gilbert & Hixon, 1991; Tulving, Schacter, & Stark, 1982). Participants were presented with 24 word fragments, 10 of which could be completed with words congruent with the primed concept of high achievement, and were asked to complete them as quickly as possible with the first word that came to mind. The 10 target fragments were selected such that (1) each had a completion with a clear semantic association with the target concept and (2) each could be completed in more than one way. The 10 target fragments and prime-congruent completions were:

COMP_ _ _ (COMPETE)
ATT _ _ _ (ATTAIN)
QUI_ _ (QUICK)
B_AT (BEAT)
GOA_ (GOAL)
REW_ _ _ (REWARD)
PRI _ _ (PRIZE)
_IN (WIN)
R_CE (RACE)
CONT_ _ _ (CONTEST)

Nine of the ten targets (all but *compete*), did not appear in the priming task, which strengthens the case that any priming effects are due to the activation not of the specific words primed, but of the general concept. The total number of prime-congruent completions was used as a measure of construct activation.

Participants were debriefed using the funneled debriefing procedure (Chartrand & Bargh, 1996). No participant indicated suspicions that the tasks were related.

Results and Discussion

The number of target completions was examined as a function of experimental condition using tests of planned orthogonal contrasts. As expected, participants in the priming conditions made more prime-congruent completions ($M = 3.45$, $SD = 1.53$) than participants in the control condition ($M = 2.74$, $SD = 1.47$), $t(84) = 2.01$, $p < .05$. The number of prime-congruent completions did not differ, however, as a function of priming type [NP ($M = 3.55$, $SD = 1.48$) vs. NNP ($M = 3.34$, $SD = 1.61$)], $t(84) = 0.52$, $p = .61$. Thus, although both the NP and NNP conditions activated a high achievement construct, there was no difference in the strength of activation between the NP and NNP conditions.

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[1] Participant sex did not moderate any of the effects in this or the later studies.

Study 1

In Study 1 we considered one of the dynamic properties of construct activation and behavioral assimilation that has been theorized to differentiate goal vs. semantic constructs: postdelay behavioral assimilation. According to Förster et al. (2007), accessibility from semantic constructs decreases rather quickly after the priming episode (Bargh et al., 2001; Higgins, Bargh, & Lombardi, 1985; Srull & Wyer, 1979). Accessibility from goals (and thus the potential for accessible goals to manifest in behavior), on the other hand, remains as long as the goal is active and not fulfilled (e.g., Bargh & Barndollar, 1996; Bargh et al., 2001). We thus examined the influence of primed constructs on behavioral assimilation after delay. If narratives are more likely to prime goals than are nonnarrative primes, then the influence of the primed construct on behavioral assimilation should be more pronounced after delay, in the narrative than in the nonnarrative condition. We used word search tasks as measures of the pursuit of achievement goals following previous research in this area (e.g., Bargh et al., 2001).

Method

Participants and Design

Forty-six undergraduate psychology students (35 female, 11 male) participated in the experiment in partial fulfillment of a course research requirement. In one condition, participants received a narrative prime, followed by a delay, then the word search task; in the other, participants received a nonnarrative prime, followed by a delay, then the word search task.

Materials and Procedure

The primes were identical to those used in the pilot study. After the respective priming tasks, there was a delay during which participants were given 5 minutes to draw their family tree as completely as they could. Importantly, this task has been used as a delay manipulation in previous goal-priming research in which it has been shown not to provide an outlet for the fulfillment of achievement or performance goals (Bargh et al., 2001).

After spending 5 minutes on the family tree task, participants completed the word search task. Three word search puzzles were used to assess the extent to which the primed construct influenced behavior (Bargh et al., 2001). Each puzzle consisted of a 10 × 10 matrix of letters in which were embedded 10 thematically related words. Each puzzle had a different theme: foods (e.g., egg, cake, corn), colors (e.g., red, tan, purple), or creepy crawlies (e.g., spider, worm, moth). The words to be found were not listed for each puzzle and participants were instructed to circle as many words as they could find that were related to the theme of the puzzle. The total number of words found across all three puzzles was used as the dependent measure.

Participants were debriefed using the funneled debriefing procedure (Chartrand & Bargh, 1996). No participant indicated suspicions that the tasks had been related.

Results and Discussion

As expected, a *t*-test found that, after a delay, participants in the narrative prime condition found more words ($M = 17.57$, $SD = 4.52$) than did those in the nonnarrative prime condition ($M = 14.57$, $SD = 4.76$), $t(44) = 2.19$, $p = .03$, $\eta^2 = 0.10$. Importantly, given the results of the pilot study, this effect is not due to greater general accessibility of the target construct, but rather is likely a dynamic property of the activated construct.

Study 2

In addition to greater postdelay behavioral assimilation, primed goals also show a decrease in accessibility after goal-fulfillment (Förster et al., 2007). Thus, in Study 2, we compared accessibility of a primed construct after an opportunity to fulfill the prime-related goal. Specifically, participants were primed (narrative vs. nonnarrative), then completed a word search task (an opportunity for goal fulfillment), and then a word fragment completion test (to measure accessibility).

In this study, we predicted that there would be no difference between narrative and nonnarrative priming conditions on an immediate postprime word search task, but that the accessibility of prime-congruent concepts would subsequently be significantly lower in the narrative prime condition. Our prediction of no difference in behavioral assimilation on the word-search task is premised on the notion that both goal and semantic constructs can produce immediate, postprime behavioral assimilation effects (see Förster et al., 2007, for a review). Theorizing on the perception-action link posits that behavioral assimilation can result from semantic priming (e.g., Bargh & Barndollar, 1996; Bargh et al., 1996). On this account, priming semantic constructs can increase the likelihood of prime-consistent behaviors via a simple spreading of activation from semantic to behavioral representations. This account does not implicate motivational constructs (e.g., goals) in explaining behavioral assimilation.

Method

Sixty-five undergraduate psychology students (48 female, 17 male) participated in the experiment in partial fulfillment of a course research requirement.
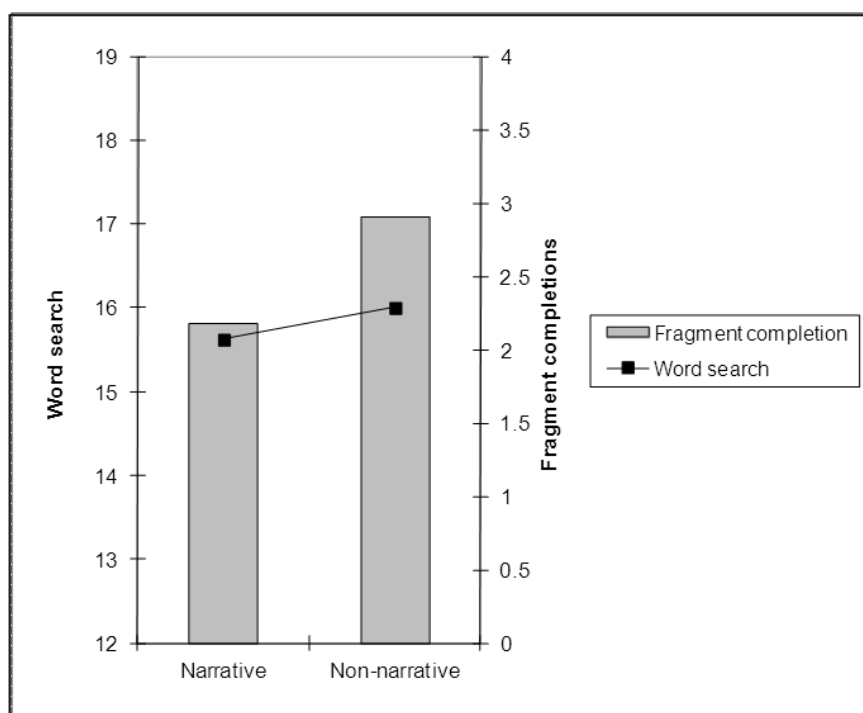
Figure 1. Fragment completions (right axis) and number of words found on the word search task (left axis) as a function of prime condition (Study 3).

In one condition, participants received a narrative prime (NP), followed by a word search task (WS), and then a fragment completion task (FC). In the other, participants received a nonnarrative prime (NNP), followed by a word search task, and then a fragment completion task. Comparison of these two conditions allowed us to test postfulfillment accessibility. After the word search task, participants completed the same fragment completion task as used in the pilot study.

Results and Discussion

As expected, participants in the narrative prime ($M = 15.62$, $SD = 4.43$) and nonnarrative prime ($M = 16.00$, $SD = 4.60$) conditions did not differ in terms of the number of words found in the word search task, $t(63) = 0.34$, $p = .73$, $\eta^2 = 0.00$, but participants in the narrative prime condition made significantly fewer postfulfillment prime-congruent word completions ($M = 2.18$, $SD = 1.19$) than those in the nonnarrative condition ($M = 2.90$, $SD = 1.40$), $t(63) = 2.26$, $p = .03$, $\eta^2 = 0.08$ (see Figure 1).

General Discussion

The studies reported here yielded results consistent with the hypothesis that embedding a concept in a narrative is more likely to activate a goal than is priming that same concept out of narrative context. Specifically, embedding the concept of high achievement in a narrative led to greater post-

delay behavioral assimilation than did priming the same concept in a nonnarrative context (Study 1), and lower postfulfillment accessibility (Study 2).

It seems that the kind of processing involved in reading a narrative activates a goal. Narrative processing involves fitting the semantic information presented in a story into a situation model that is centrally structured around goals (see Zwaan & Radvansky, 1998, for a review), and this processing serves to activate that goal. Processing identical information in a nonnarrative context, without structuring this information in relation to an overarching goal, is less likely to activate a goal.

It is important to note that the pattern of results obtained here does not suggest that goal-related information simply receives *more processing* when in a narrative context. Increased processing of prime-congruent information in the narrative versus nonnarrative condition would have been evidenced by between condition differences in immediate postprime construct accessibility in the pilot study. This was not observed. Rather, it seems that the presentation of identical information is more likely to activate a goal in a narrative context.

This is not to say that nonnarrative contexts never activate goals or that narrative contexts only or always activate goals. Rather, given identical semantic information, the structuring of that information in a narrative context increases the likelihood of goal priming compared to presentation in a nonnarrative context. Because narratives routinely structure semantic content with reference to goals (Graesser, 1981; Lichtenstein & Brewer, 1980; Lutz & Radvansky, 1997), they are more likely to give rise to goal priming than are primes which do not structure semantic

information with reference to goals (e.g., the nonnarrative primes in the current studies).

One of the reasons that narratives may be more likely to prime goals is that they commonly depict protagonists *expending effort* in the pursuit of goals. Work by Dik and Aarts (2007) shows that cues that signal expended effort in the pursuit of goals increase the accessibility of goal-related information and increase goal-pursuit. In one study, for example, they had participants watch a short animated film in which a protagonist (a ball) tries to get a kite out of a tree for another character. In different versions of the film, the ball expends more or less effort in attempting to retrieve the kite. When participants were later asked to help the experimenter, those exposed to a more effortful protagonist were more helpful. It may be that depicting a protagonist effortfully pursuing a goal increases the likelihood of spontaneous goal inference, rendering goal-related information more accessible. Although a possibility, it should be noted that perceived effort per se does not guarantee that a goal will be primed in the reader. Cues to effort may increase the likelihood that the reader infers a goal on the part of the protagonist, but not necessarily that a goal construct is primed in the reader's mind. The role of perceived effort in the priming of goals via narratives remains an intriguing avenue for future research.

There is clear evidence that goals can be primed in a variety of ways ranging from active participation in goal pursuit (Förster et al., 2005) to exposure to goal-related others (Shah, 2003) to actively suppressing goal-related information (Liberman & Förster, 2000), none of which obviously constitute narrative contexts. It is clearly not the case that narratives are the only stimuli that prime goals. However, the fact that narratives do prime goals does suggest important practical implications. There is growing recognition of the importance and effectiveness of narrative communication techniques in public service domains, such as health-related behavior change (see Hinyard & Kreuter, 2007, for a review). The current results suggest that part of the reason that narratives may be so effective in eliciting behavior change is that they routinely activate goals in the target audience, which increases the likelihood of behavioral assimilation. Future work should explore in more detail the practical implications of goal priming (both via narratives and other means) in applied domains.

The current studies focused on only two aspects of goal dynamics: postdelay behavioral assimilation and postfulfillment accessibility. Förster et al. (2007) specify seven attributes of goal constructs, and future work should explore these in relation to narratives. One may expect, for example, that concepts primed in a narrative context should inhibit the accessibility and behavioral influence of concepts related to goals that conflict with the prime. Future work should examine the various other indicators of goal priming in relation to narratives to gain a better understanding of the role of narrative in the activation and application of mental constructs.

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Appendix

Nonnarrative Prime

1. saw hammer he train the
2. the machine wash frequently clothes
3. *he up runs quickly really*
4. close it tight is very
5. *ever wants to John win*
6. sky the seamless red is
7. intense the latch heat is
8. *for always wonderful striving glory*
9. a have June holiday wedding
10. it he'll brown just make
11. *out he loves compete to*
12. prepare the gift wrap neatly
13. fires the very gun loudly
14. *can risen he victory attain*
15. in the into park it's
16. *he'll course master the red*
17. somewhat prepared I was retired
18. *plane the is competition fierce*
19. red past wise the benches
20. *athlete he bottle is an*
21. ate she it selfishly all
22. *succeed he pillow thinks he'll*
23. *the please is today race*
24. deep around the ditch past
25. send I mail it over
26. gully down the bird steep
27. *best he'll foot try his*
28. *wants bled he to achieve*

Narrative Prime

1. *the please is today race*
2. in the into park it's
3. *ever wants to John win*
4. *out he loves compete to*
5. *athlete he bottle is an*
6. it's about bereft to start
7. *best he'll foot try his*
8. fires the very gun loudly
9. *plane the is competition fierce*
10. the bounce sun brightly shines
11. intense the latch heat is
12. *wants bled he to achieve*
13. *for always wonderful striving glory*
14. takes cause a drink now
15. *he up runs quickly really*
16. deep around the ditch past
17. *succeed he pillow thinks he'll*
18. the quiver gentle slope up
19. through mouse moves the trees
20. red past wise the benches
21. *he'll course master the red*
22. gully down the bird steep
23. approaching furry they're the line
24. little he festive stumbles a
25. close it tight is very
26. it he'll brown just make
27. *can risen he victory attain*
28. pounce neck stretches he his

Note. Items in *italics* are the critical priming stimuli. They are not italicized in the actual task.