# Behavioral Consistency and Inconsistency in the Resolution of Goal Conflict

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During the course of a day, consumers experience choices that involve goal conflict (e.g., eat tasty vs. healthy food, recreate vs. work, relax vs. act). In some cases, an initial behavior is followed by a similar behavior. In other cases, an initial behavior is followed by an opposing behavior. We posit that a passive guidance system can nonconsciously guide behavior when there is goal conflict and, hence, determine whether a sequence of behaviors will be consistent or inconsistent. The passive guidance system is sensitive to whether a current behavior sustains goal activation and encourages similar future behaviors or results in goal achievement and encourages dissimilar future behaviors. Eight experiments provide evidence for this passive guidance system.

A consumer walks into a supermarket to shop. Early in the shopping trip, she passes through the bakery department. She considers buying a pastry but decides not to make the purchase. Later in the shopping trip, the consumer encounters many other tempting products (e.g., potato chips, cookies, candy). How will her decision to resist purchasing the pastry influence her subsequent decisions? Will her initial decision encourage additional restraint (i.e., behavioral consistency) or will it invite indulgence (i.e., behavioral inconsistency)? More importantly, how might we explain either course of action?

Goal theory is a popular framework for understanding the relationship between the series of decisions faced by our supermarket shopper. Goal theory can be used to explain how individuals manage multiple, conflicting goals (e.g., Dhar and Simonson 1999; Fishbach and Dhar 2005, 2008). For example, people may consider the trade-offs between these goals (e.g., pleasure and health) when making their behavioral decisions (Dhar and Simonson 1999). Alternatively, initial goal pursuit may provide an opportunity for an inference that one is committed to a goal, which will lead to similar behavior, or that one has made progress to-

ward a goal, which will lead to dissimilar behavior (Fishbach and Dhar 2005). Each of these processes suggests active goal management. People monitor their progress toward each goal and reason about whether the current state is sufficient for continued goal pursuit or disengagement.

There is evidence that active goal management is not sufficient to explain all goal-directed behavior. For example, people often perform behaviors based on goals activated by environmental features (Ferguson, Hassin, and Bargh 2007), goal-related means (Shah and Kruglanski 2003), or other people's goals (Aarts, Gollwitzer, and Hassin 2004). In these instances, people do not reason about whether they should pursue a preexisting goal or a newly activated goal. In fact, people are often unaware that additional goals have been made active. Yet, people pursue these nonconsciously activated goals and then, somehow, disengage and pursue alternative goals. This has led to a call for models that can address issues of concurrent goal activation, dynamic goal pursuit, goal conflict management, and goal system evolution in a nonconscious processing system (Bargh 2006).

We propose a passive goal guidance (PGG) model that seeks to provide a fuller account of how the goal system can passively manage the pursuit of conflicting goals. We will show that passive goal conflict management relies on the activation and inhibition of competing goals and is sensitive to the framing of a means (i.e., the meaning of the behavior). More specifically, we will show that behavioral consistency is a consequence of a goal remaining active, and competing goals remaining inhibited, across a series of behaviors. In contrast, behavioral inconsistency is a consequence of goal achievement (i.e., completion), the release of the previously activated goal, and the rebound of inhibited goals. The PGG model is tested in the domain of eating

behavior because this domain often activates two conflicting goals: pleasure and health.

This article is organized as follows. First, we provide an overview of how active goal management models explain the pursuit of multiple goals. Next, we present the PGG model and derive propositions. A pilot experiment shows that some behaviors lead to consistent behavior whereas other behaviors lead to inconsistent behavior. Experiment 1 shows that when an initial behavior is insufficient (sufficient) for goal achievement, it encourages consistent (inconsistent) subsequent behaviors. Experiment 1A provides support for a passive goal management system that relies on goal activation and inhibition. Experiment 2 forces people to use a passive or an active management system and shows that each system leads to a different pattern of behavior. Experiment 3 shows that recent behavior engages the passive guidance system, whereas a prediction based on hypothetical behavior engages the active guidance system. Experiment 4 shows that a passive guidance system can influence a wide array of behaviors associated with an active goal. Experiment 5 shows how previously activated goals may interact with behaviors to determine sustained goal activation or goal achievement.

## GOAL MANAGEMENT IN THE PRESENCE OF CONFLICTING GOALS

Goal management models seek to explain goal pursuit and disengagement in the presence of goal conflict. Fishbach and Dhar (2005, 2008; see also Fishbach, Dhar, and Zhang 2006) propose that the determinant of consistency versus inconsistency in two consecutive behavioral decisions is the extent to which an initial behavioral decision signals goal progress or commitment. They posit that when people perceive an initial act as goal progress, they become less likely to pursue the same goal, and they end up pursuing opposing goals when making the second decision. When people perceive an initial act as commitment to a goal, they become more likely to pursue the same goal when making the second decision. Therefore, people make an inference of how far they are from achieving a certain goal and, depending on whether there is an inference of progress or commitment, choose their subsequent behaviors.

Dhar and Simonson (1999) propose that behavioral consistency and inconsistency may be the result of whether people are trading off a goal and a resource or two competing goals. When there is a trade-off between pursuing a goal (e.g., pleasure) and spending a resource (e.g., money), people tend to focus on either goal fulfillment or resource conservation and to be consistent across behaviors. When there is a trade-off between two goals (e.g., pleasure and health), people tend to pursue each of these goals and to be inconsistent across behaviors. Apparent in this conceptualization is the notion that consumers' active monitoring of their goals and behaviors will allow them to achieve a desired end state.

Although the two goal management models discussed above differ with respect to the specifics of the goal pursuit

process, the models do have assumptions common to many goal management systems. First, the tendency for a consumer to engage in consistent or inconsistent behavior is a function of an active monitoring system (Kivetz and Zheng 2006). Second, the active monitoring system has to manage the pursuit of competing goals (Okada 2005). Third, managing the pursuit of competing goals requires that goal targets (i.e., performance standards) be established and that progress toward the targets be assessed (Novemsky and Dhar 2005). Fourth, a person must be vigilant about competing goals if sufficient progress is going to be made toward all goals (Zhang, Fishbach, and Dhar 2007).

A different class of findings in the goal literature demonstrates that people often pursue goals without being aware of goal pursuit (Bargh 1990; Bargh et al. 2001; Chartrand et al. 2008). Bargh et al. (2001) found that priming of achievement words (e.g., "win," "compete," "succeed," "strive," etc.) in a word-search puzzle had a positive influence on participants' performances on subsequent word-search puzzles, as indicated by an increased number of words found. Laran, Janiszewski, and Cunha (2008) found that priming a relaxing (fun) goal increases the choice shares of relaxing (fun) vacation destinations. Chartrand et al. (2008) found that priming a prestige-seeking goal results in higher choice shares of a prestige brand such as Nike over a value brand such as Hanes. In these instances, people were not aware of the influence of the primes on behavior.

Demonstrations of unconscious goal activation and pursuit suggest that it may be useful to theorize about how consumers manage these "goal-activating" events. One possibility is that goal-activating events are not managed. Temporarily activated goals are pursued, and then the system returns to a steady state. For example, Ferguson and Bargh (2004) find that goal-relevant objects are more positively evaluated than goal-irrelevant objects after goal priming but not after goal achievement. A second possibility is that a passive guidance system manages goal pursuit in the face of goal-activating events that temporarily redirect behavior. If this is the case, we should be able to document the processes by which a passive system manages goal pursuit, especially in the case of goal conflict.

## PASSIVE GOAL GUIDANCE

The PGG model proposes a goal management system for the pursuit of multiple goals in the presence of goal conflict. The PGG model differs from active goal management models in important ways. First, there is no active monitoring of goal pursuit (e.g., Aarts, Custers, and Holland 2007; Bargh et al. 2001). The system responds to the environment based on the state of the system and the appeal of available means. Second, the PGG system can disengage from goals, and engage in competing goals, without active deliberation (e.g., Aarts et al. 2007; Custers and Aarts 2007). Third, the system responds to goal activators within the environment, such as direct goal primes, means primes, observed behavior primes, and prior behavior (e.g., Aarts et al. 2004; Bargh and Gollwitzer 1994; Shah and Kruglanski 2003). In pro-

posing a process of how activated goals passively guide behavior, we will derive new predictions about how the goal system responds to all the possible activators in the environment and manages the pursuit of these multiple goals.

The PGG model is grounded by the conceptualization of goals as knowledge structures (Dijksterhuis, Chartrand, and Aarts 2007; Kruglanski 1996; Markman and Brendl 2005). The PGG model describes how goals, behavioral plans, means, and previous behaviors interact to influence behavioral choice. In this system, goals are represented using two information features: the semantic representation of the goal and the affective-motivational property of the goal (i.e., whether a goal is positive or negative). Hence, goals can be self-motivating and operate outside of consciousness (Custers and Aarts 2007; Dijksterhuis et al. 2007; Markman and Brendl 2005). Behavioral plans are the lower-order goals people pursue in order to achieve superordinate goals. Behavioral plans have also been called "task goals" or "subgoals" in order to differentiate them from superordinate goals (e.g., Kruglanski et al. 2002). Means are opportunities to execute a behavior that will satisfy a goal. Behaviors are the acts of implementing the means.

The PGG model addresses the processes by which people passively engage in goal pursuit. Since the passive system does not have preset goal standards and, thus, cannot evaluate how close the system is to the achievement of each goal, the value of a means is a function of both its usefulness for achieving a goal and the activation of a goal. All things being equal, relative goal activation drives behavior. This assumption leads to the model's first proposition:

> **P1:** As goal activation increases (decreases), means that are relevant to the goal will gain (lose) value.

Previous theories proposing passive influences on goal activation and pursuit (e.g., goal systems theory; Kruglanski et al. 2002) do not offer assumptions of how behaviors achieve goals in the goal system. In the PGG model, the impact of a behavior, in terms of continued goal activation, is a function of the perceived meaning of the behavior. That is, the same behavior (means) can be perceived as aiding in the pursuit of a goal(s) or completing a goal(s). Thus, the goal state is embedded in the perception of the behavior, as opposed to an analysis of how the behavior moves the individual toward a goal standard. This leads to a second proposition:

> **P2:** The perception of the efficacy of a behavior influences its impact on continued goal activation or goal release (i.e., goal deactivation owing to goal achievement or frustration).

In the case of conflicting goals, a PGG system must have a process for encouraging pursuit of one goal while still being able to pursue competing goals (i.e., balancing). First, the goal system needs the ability to pursue activated goals. As discussed above, typical goal management models assume that people reason about how much progress they have made on certain goals and decide which goal(s) to pursue next (Fishbach and Dhar 2005). Since focused attention is not available to the PGG system, the system relies on properties available to any cognitive knowledge structure. One of these properties is the inhibition of competing concepts (Anderson, Green, and McCulloch 2000). The system inhibits the activation of competing goals in order to make the pursuit of activated goals possible (Shah, Friedman, and Kruglanski 2002). Thus,

> **P3:** Goal activation will result in the inhibition of competing goals.

Second, the system needs the ability to balance the pursuit of conflicting goals. The single-minded pursuit of the same goal would be unhealthy. Because the literature on goal primes focuses on situations in which a single goal is active, it proposes that the goal becomes deactivated (i.e., the goal system goes back to steady state) after goal achievement. There is evidence, however, that disengagement from a goal can lead to the pursuit of other goals in certain populations of people (Mukhopadhyay, Sengupta, and Ramanathan 2008). Based on the literature dealing with how inhibited concepts may be reactivated when the inhibition process ends (Macrae et al. 1994), we propose a goal rebound effect. In the presence of two conflicting goals, achievement of one goal results in the release of the recently active goal and activation of the recently inhibited goal. In order to encourage goal balance and conflict management, recently inhibited goals must rebound to an activation level that allows for appropriate goal pursuit (i.e., greater than the level of activation in a steady state). Thus, management of conflicting goals within the PGG system occurs as a consequence of the activation and inhibition of cognitive knowledge structures. This process leads to a fourth proposition:

> **P4:** Goal achievement will result in release of a target goal (goal deactivation) and rebound (i.e., activation) of recently inhibited goals.

## PILOT EXPERIMENT

The PGG model makes a number of assumptions about how a PGG system influences behavior. There have been several demonstrations that goal activation leads to valuation of means that are related to the goal (Chartrand et al. 2008) and devaluation of means that are not related to the goal (Brendl, Markman, and Messner 2003; Markman, Brendl, and Kim 2007). We seek to extend our understanding of the PGG system by looking at the consequences of goal achievement. Is it the case that the PGG system goes back to a resting state after goal achievement, as is the case when only a single goal is active? Or does the PGG system engage in a form of management by letting competing goals rebound after goal achievement?

We confine our investigation of the operations of the passive goal system to a common domain in the goal conflict literature: the conflict between pleasure and health in the eating domain. The pilot study used three conditions to in-

vestigate how initial food consumption influences subsequent food consumption. Participants were invited to eat one chocolate, as many chocolates as they wished, or were unaware of the chocolates (control condition). After devoting 25 minutes to completing two filler studies, the participant was invited to take an indulgent or healthy chocolate snack as a "thank you" for completing the studies. If the choice of snacks is driven by a PGG system, then prior consumption of a single chocolate should encourage the choice of the indulgent treat. One act of indulgence should activate goals associated with indulgence (e.g., pleasure) and encourage subsequent acts of indulgence (proposition 1). In contrast, prior consumption of multiple chocolates should encourage the choice of a healthy treat if the chocolates were consumed until the pleasure goal was achieved. Goal achievement results in goal release and the activation of a competing goal such as health (proposition 4). Note that a different outcome is possible. If the goal system goes back to a resting state after goal achievement, people who eat as many chocolates as they wish should be as likely to choose a healthy treat as people in the control condition.

## Method

*Participants and Design.* Participants were 164 undergraduate students who participated in the experiment for extra credit. The design was a one-factor (goal state), three-level (activated, achieved, control) between-subjects design.

*Procedure.* Participants were invited into a lab, seated in private carrels, and told they would participate in three studies. Participants in the two treatment conditions were told that the first study investigated the influence of eating chocolate on their mood. They were asked to assume that they had come home and found a chocolate truffle in the kitchen. They were then told to grab a bag from the left-hand side of their carrel, open it, remove the chocolate truffle, and eat it. All participants ate the truffle. Participants in the activated goal condition were then asked about their mood and performed two filler experiments. Participants in the achieved goal condition were told that they had just realized there were additional truffles at home. They were then told to grab an additional bag of truffles located on the right-hand side of their carrel and eat as many truffles as they wanted. When these participants were done eating, they were asked questions about their mood and performed the filler experiments. All treatment participants were given water during the experiment.

Participants in the control condition did not participate in the truffle study. These participants were drawn from the same subject pool and were run independently. These control condition sessions were always run immediately before or after the treatment session in an effort to limit time of day effects on responses.

After completing the filler studies, participants were told that they would receive a gift for their participation in the series of experiments. Participants were asked to choose between a Chips Ahoy chocolate chip granola bar (a healthy snack) and a Chips Ahoy packet of chocolate chip cookies (an indulgent snack). These two snacks were selected because they both contained chocolate (i.e., there would not be a bias against one snack owing to satiation with the taste of chocolate) and because both snacks had similar calories (100 calories), although participants were not made aware of this fact.

*Stimuli.* The truffles were Lindt milk chocolate truffles. The two snacks were chosen based on their healthiness. It was important to choose two snacks that had a similar description and taste but that varied in their perceived degree of healthiness. A pretest conducted with a separate sample from the same participant population ($n = 58$) asked participants to indicate the healthiness of each snack using a scale ranging from 1 (very unhealthy) to 9 (very healthy). The chocolate chip granola bar was considered healthier ($M = 5.66$) than the chocolate chip cookies ($M = 2.98$; $t(57) = 11.24$, $p < .01$).

## Results

*Manipulation Check and Control Tests.* Participants in the achieved goal condition ($M = 3.20$) ate significantly more truffles than participants in the activated goal condition ($M = 1.00$; $t(100) = 19.15$, $p < .01$). There were no mood differences across these conditions ($t(100) < 1$).

*Analysis.* There was an effect of goal state on the choice of snack ($\chi^2(2) = 10.39$, $p < .01$). Participants in the activated goal condition (38.7%) were less likely to choose a granola bar than participants in the control condition (51.7%, $\chi^2(1) = 3.52$, $p < .05$, 1-tailed). Participants in the achieved goal condition (70.5%) were more likely to choose a granola bar than participants in the control condition ($\chi^2(1) = 3.65$, $p < .05$, 1-tailed). Postsession debriefing indicated that no participant guessed the purpose of the experiment or made a connection between the initial chocolate tasting and the choice of a gift at the end of the session.

## Supporting Evidence

We used the manipulations of the main pilot experiment with a separate group of participants ($n = 166$) and measured implicit goal activation in order to support the claims of the PGG model. After the chocolate consumption episode, participants were told that they would perform an attention task involving decisions about whether certain letter strings were or were not words. This task allowed us to assess the goal activation and inhibition mechanism underlying the pattern of means desirability. We told participants to focus their attention on a fixation point (X) on the center of the computer screen. The fixation point disappeared in an interval varying between zero and 2 seconds (randomly determined) and was replaced by a letter string. Participants had to press one if the letter string was a word and zero if it was not, responding as quickly and accurately as possible. Participants performed 10 practice trials and then responded

THE INFLUENCE OF ACTIVATING/ACHIEVING A PLEASURE GOAL ON THE ACCESSIBILITY OF PLEASURE AND HEALTH GOAL CONCEPTS
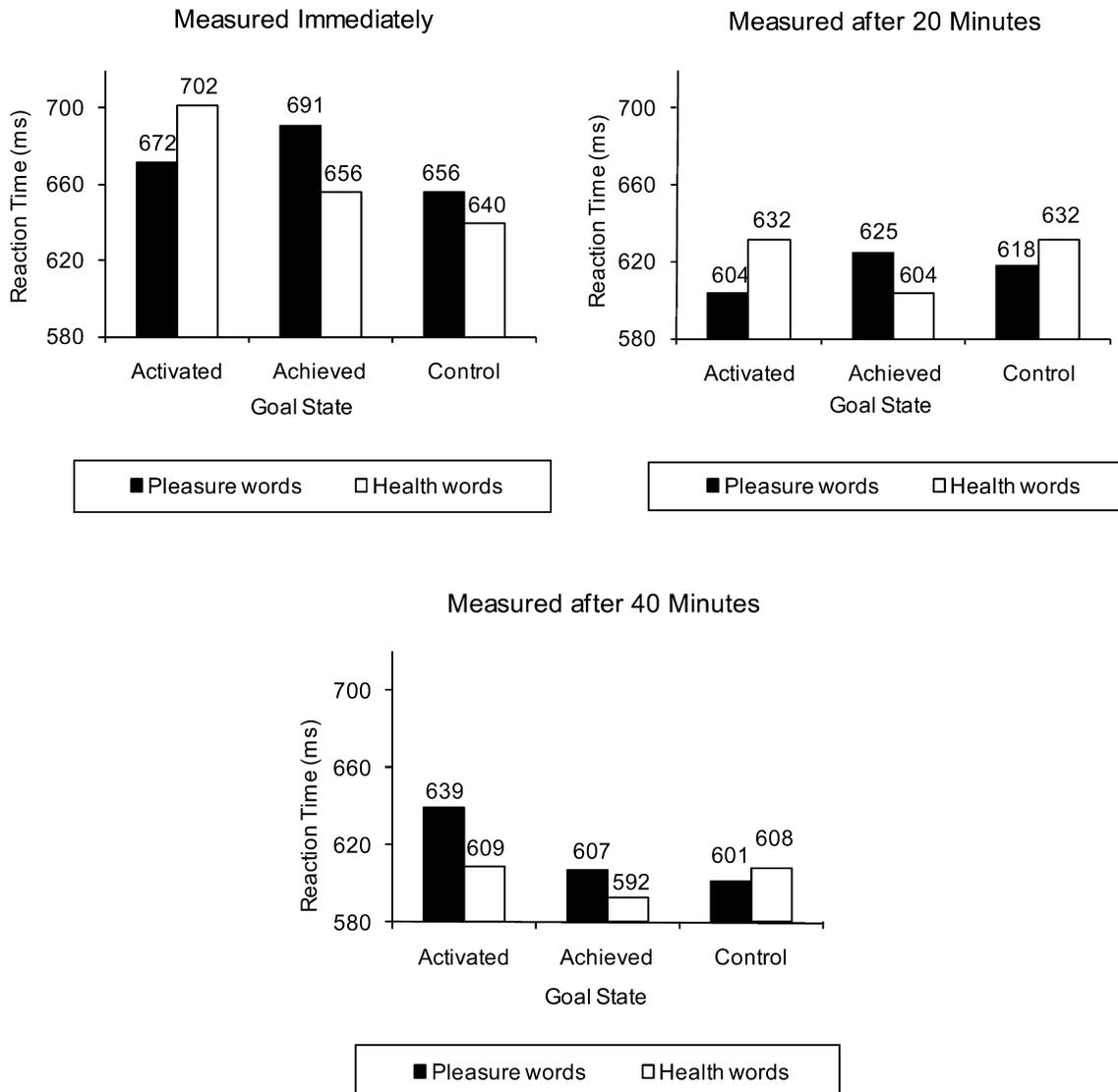


to 10 pleasure-related words (delicious, enjoy, gourmet, delight, pleasure, savory, good, desire, indulge, juicy) and 10 health-related words (calories, slim, regimen, fresh, weight, control, fit, health, exercise, workout). These 20 target trials were presented in random order along with 10 irrelevant-word trials (aimed at avoiding suspicion about the real goals of the task) and 30 nonword trials. In order to examine the duration of goal activation, the procedure was repeated three times using the same words each time: immediately after the consumption episode, after 20 minutes, and after 40 minutes. The dependent measure was the latency for recognition of each word.

The responses from the lexical decision task were pre-pared for analysis by removing incorrect identifications of words as nonwords (5.8%). We performed a natural log transformation of reaction times for correct identifications of words. Those that exceeded three standard deviations from their cell mean were eliminated from the analysis (.7%; Bargh and Chartrand 2000; Fazio 1990). Reaction times were averaged to generate one score for each type of word (i.e., pleasure words, health words) for each participant.

The results are presented in figure 1. A repeated-measures ANOVA revealed a significant three-way interaction of delay, goal state, and word type ($F(4, 326) = 3.31, p = .01$). The goal state by word type interaction was significant immediately after consumption ($F(2, 163) = 5.41, p < .01$).

Participants were faster to identify words related to pleasure than words related to health in the activated goal state condition ($M_{\text{Pleasure}} = 672$ milliseconds, $M_{\text{Health}} = 702$ milliseconds; $F(1, 163) = 4.55$, $p < .05$). Participants were faster to identify words related to health than words related to pleasure in the achieved goal state condition ($M_{\text{Pleasure}} = 691$ milliseconds, $M_{\text{Health}} = 656$ milliseconds; $F(1, 163) = 5.63$, $p < .05$). There was no significant difference in the control condition ($M_{\text{Pleasure}} = 656$ milliseconds, $M_{\text{Health}} = 640$ milliseconds; $F(1, 163) = 1.09$, $p = .30$).

The goal state by word type interaction was significant 20 minutes after consumption ($F(2, 163) = 7.99$, $p < .01$). Participants were faster to identify words related to pleasure than words related to health in the activate goal state condition ($M_{\text{Pleasure}} = 604$ milliseconds, $M_{\text{Health}} = 632$ milliseconds; $F(1, 163) = 10.11$, $p < .01$). Participants were faster to identify words related to health than words related to pleasure in the achieved goal state condition ($M_{\text{Pleasure}} = 625$ milliseconds, $M_{\text{Health}} = 604$ milliseconds; $F(1, 163) = 5.54$, $p < .05$). There was no significant difference in the control condition ($M_{\text{Pleasure}} = 618$ milliseconds, $M_{\text{Health}} = 632$ milliseconds; $F(1, 163) = 2.13$, $p = .15$).

The goal state by word type interaction was not significant 40 minutes after consumption ($F(2, 163) = 1.27$, $p = .28$). Participants were marginally slower to identify words related to pleasure than words related to health in the activated goal state condition ($M_{\text{Pleasure}} = 639$ milliseconds, $M_{\text{Health}} = 609$ milliseconds; $F(1, 163) = 3.61$, $p = .06$). There was no significant difference in the achieved goal state condition ($M_{\text{Pleasure}} = 607$ milliseconds, $M_{\text{Health}} = 592$ milliseconds; $F(1, 163) = .85$, $p = .36$) and in the control condition ($M_{\text{Pleasure}} = 601$ milliseconds, $M_{\text{Health}} = 608$ milliseconds; $F(1, 163) = .18$, $p = .67$).

## Discussion

The results of the pilot experiment are consistent with the propositions of the PGG system. We argue that the sight of tempting food created a conflict between a pleasure and a health goal. The consumption of one truffle sustained the activation of the pleasure goal, which in turn encouraged a person to select an indulgent treat 25 minutes later. The consumption of multiple truffles allowed the participant to release the pleasure goal. As a consequence, the competing health goal rebounded, and the participant became more likely to select a healthy treat 25 minutes later. The reaction time evidence provides support for the claim of goal activation and inhibition. Words related to a pleasure goal concept were more accessible than words related to a health goal concept in the activated goal condition, but the opposite was true in the achieved goal condition. This pattern of activation was still present after 20 minutes but not after 40 minutes. This is evidence of the temporary nature of the goal pursuit process that the PGG model seeks to explain. Over time (e.g., 40 minutes) these goals tend to be released even if they are not achieved (i.e., goal frustration). Interestingly, there seems to be a rebound effect in the goal

activated condition after 40 minutes (i.e., marginally faster reaction times for words related to health).

The literature on goal primes (see Bargh [2006]; Dijksterhuis et al. [2007] for recent reviews) demonstrates that an activated goal influences behavior until it has been achieved. The pattern of choices and goal accessibility of the pilot experiment take a step further and provide evidence for passive goal guidance in the presence of two conflicting goals. The process of goal pursuit involves inhibition of goal concepts that may interfere with goal achievement. After a goal has been achieved, the goal system seems to compensate for the recent inhibition of competing goals by allowing these goals to rebound to high activation levels, which results in the ability to pursue multiple goals. Although the output of this process is consistent with previous models of goal management in the presence of goal conflict, goal guidance in the pilot study seems to have operated through a different guidance system. We seek to further understand this system in the remaining experiments.

## EXPERIMENT 1

The results of the pilot experiment provide evidence that is consistent with a PGG system of goal conflict management. Experiment 1 will use an experimental design that allows us to concurrently investigate all the propositions of the PGG model. We will show that goal activation enhances the value of means associated with pursuing the activated goal (proposition 1), that goal activation inhibits competing goals and degrades the value of means associated with pursuing these goals (proposition 3), that behaviors can be framed to be goal activating or goal achieving (proposition 2), and that goal-achieving behaviors allow previously inhibited goals to rebound (activate) and enhance the value of means associated with pursuing these goals (proposition 4).
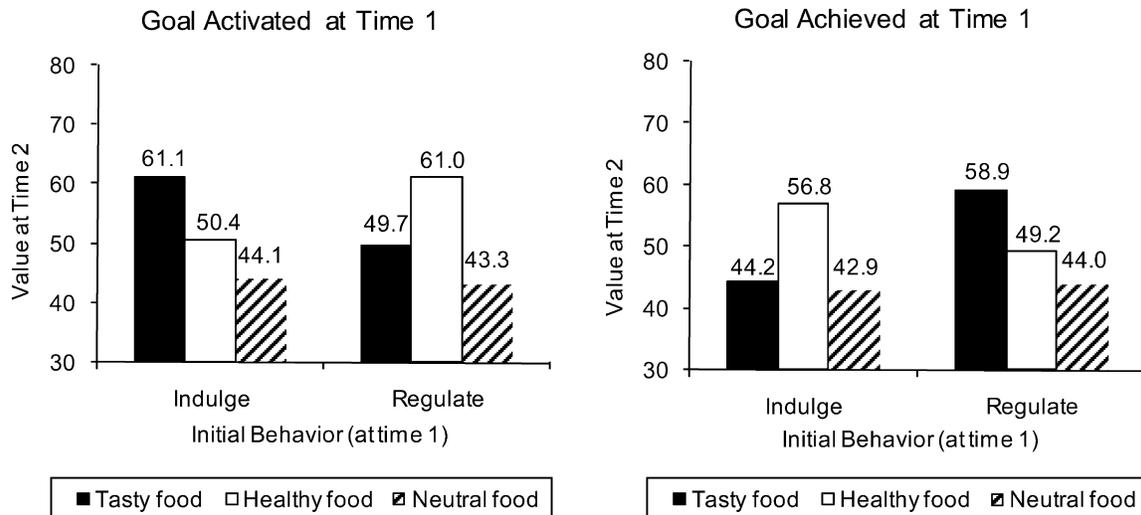
Experiment 1 modified the pilot experiment in three ways. First, we used a symmetric manipulation of "behavior." Participants were encouraged to indulge (i.e., eat a chocolate) or to regulate (i.e., avoid a chocolate) prior to engaging in a means evaluation task. If performing a behavior increases the level of activation of an associated goal, these two behaviors should activate the pleasure and health goals, respectively. Second, the goal achievement manipulation was changed so that the pleasure and health goals could be achieved subjectively, as opposed to objectively (pilot experiment). Third, after the initial behavior, participants were asked to judge how much they wanted tasty, healthy, and neutral food items, which allowed us to assess patterns of desirability for each type of means separately.

## Method

*Participants and Design.* One hundred sixty-two undergraduate students participated in the experiment for extra credit. The design was a 2 (initial behavior: indulge vs. regulate) × 2 (subjective goal state: activated vs. achieved) × 3 (means type: tasty food, healthy food, neutral food) mixed design. The initial behavior and subjective goal state

FIGURE 2

EXPERIMENT 1: THE INFLUENCE OF INDULGING/REGULATING AND SUBJECTIVELY ACTIVATING/ACHIEVING A GOAL
AT TIME 1 ON THE SUBSEQUENT DESIRE FOR FOOD



factors were manipulated between subjects, while means type was manipulated within subjects.

*Procedure.* Participants followed a truffle-tasting procedure similar to that of the pilot experiment. In the activated goal state condition, participants were exposed to a chocolate truffle and were told that they decided to eat (not to eat) it. Participants in the achieved goal state condition were exposed to the same chocolate truffle and were told that they "allow themselves to eat one treat per day" (indulge condition) or that not eating the truffle allowed them to "accomplish their healthy eating goal" (regulate condition). Participants were told that they would now perform a second task, a means evaluation task. The means evaluation task instructions told participants to assume that they were looking for something to eat and asked them to indicate how much they wanted tasty, healthy, and neutral food items "right now." Participants saw pictures of 30 food items and rated how much they wanted each food item on a scale ranging from zero (I do not want it) to 100 (I really want it). After this task, all participants responded to questions about their mood and their perceptions of the purpose of the experiment.

*Stimuli.* The chocolate truffle was the same Lindt truffle used in the pilot experiment. The evaluation task stimuli were 30 pictures of food accompanied by a word description. Ten items were tasty but fatty (i.e., hot dog, ice cream, cheese sticks, potato chips, Doritos, pizza, baked potato skins, french fries, doughnuts, and apple pie), 10 were healthy (i.e., salad, apple, carrot, whole wheat bread, lowfat yogurt, cereal, Wheat Thins, rice cake, rice, and pear), and 10 were neutral items (i.e., ham, beans, crackers, omelet, bread, cheese, Jell-O, pickles, bologna, and waffle). These

items were chosen based on a pretest with 35 participants from the same participant population as that of the main experiments who were asked to rate each food on a scale ranging from zero (very unhealthy) to 100 (very healthy). The healthy items were rated significantly healthier ($M = 65.0$) than the neutral items ($M = 48.4$; $F(1, 33) = 130.0$, $p < .01$), and the neutral items were rated significantly healthier than the tasty items ($M = 18.7$; $F(1, 33) = 210.25$, $p < .01$). A second pretest indicated that the healthy and the tasty items were equally liked ($M_{Healthy} = 51.4$ vs. $M_{Tasty} = 50.5$; $F < 1$), which ensures that any differences in preferences for healthy or tasty items are a function of the experimental manipulations. The neutral items were liked less ($M_{Neutral} = 42.0$) than the tasty or healthy items, but this should not impact our results. Neutral items were only included to confirm that certain conditions were not leading to satiation or mood states that were influencing the overall preference for food.

## Results

*Control Tests.* There was no effect of initial behavior ($M_{Indulge} = 6.49$, $M_{Regulate} = 6.90$; $F(1, 107) = 2.39$, $p > .10$) or subjective goal state ($M_{Activated} = 6.70$, $M_{Achieved} = 6.69$; $F < 1$) on the participants' mood level. Mood did not have an influence in any of the remaining studies, therefore it will not be discussed further (see, however, the discussion of specific emotional states in experiment 1A).

*Analysis.* The average ratings of the sets of 10 items are presented in figure 2. A repeated-measures ANOVA revealed a significant three-way interaction of initial behavior, subjective goal state, and means type ($F(2, 316) = 23.14$, $p < .01$). The behavior by means type interaction was significant in the activated goal condition ($F(2, 318) = 10.27$, $p < .01$). Partic-

ipants assigned higher ratings to the tasty food items than to the healthy food items in the indulge condition ($M_{\text{Tasty}} = 61.1$, $M_{\text{Healthy}} = 50.4$; $F(1, 158) = 6.12$, $p = .01$). Participants assigned higher ratings to the healthy food items than to the tasty food items in the regulate condition ($M_{\text{Tasty}} = 49.7$, $M_{\text{Healthy}} = 61.0$; $F(1, 158) = 6.49$, $p = .01$). The behavior manipulation did not influence the ratings of the neutral food items ($M_{\text{Indulge}} = 44.1$, $M_{\text{Regulate}} = 43.3$; $F < 1$).

The behavior by means type interaction was significant in the achieved goal condition ($F(2, 318) = 13.41$, $p < .01$). Participants assigned lower ratings to the tasty food items than to the healthy food items in the indulge condition ($M_{\text{Tasty}} = 44.2$, $M_{\text{Healthy}} = 56.8$; $F(1, 158) = 10.26$, $p < .01$). Participants assigned lower ratings to the healthy food items than to the tasty food items in the regulate condition ($M_{\text{Tasty}} = 58.9$, $M_{\text{Healthy}} = 49.2$; $F(1, 158) = 6.26$, $p = .01$). The manipulation did not influence the means of the neutral food items ($M_{\text{Indulge}} = 42.9$, $M_{\text{Regulate}} = 44.0$; $F < 1$).

## Discussion

The results of experiment 1 shed light on how the PGG system operates in the presence of two conflicting goals. When people perform a behavior directed at one goal, they value means associated with the target goal to a greater extent (proposition 1) and means associated with the opposing goal to a lesser extent (proposition 3). When this same behavior is framed as goal achieving, there is a goal rebound effect: means associated with the target goal are valued to a lesser extent, and means associated with the opposing goal are favored to a greater extent (propositions 2 and 4).

The results of experiment 1 are consistent with the existence of a PGG system for many of the same reasons as the pilot study. No participant articulated a relationship between the act of eating or resisting the truffle and the evaluation of the food items. The only coherent hypotheses were about the mood state induced by the initial behavior and the rating of all food items. This is a plausible inference on the part of the participants, although acting on the hypothesis could not have been responsible for our results. Yet, it could be argued that participants have implicit standards for the consumption of fattening and healthy food and that they monitor behavior with respect to these standards on an ongoing basis. This monitoring, although implicit, allows them to achieve a balance in their food consumption. We assess this alternative hypothesis in experiment 1A.

## EXPERIMENT 1A

The PPG model makes specific predictions about goal activation and how it relates to means activation. Proposition 1 posits that a more (less) activated goal leads to higher (lower) evaluation of associated means. If this is so, the pattern of results observed in experiment 1 should have corresponding levels of goal activation. For example, when a behavior is framed as an act of indulgence (regulation), a pleasure (health) goal should be more activated than a health (pleasure) goal (see propositions 2 and 1). When a behavior is framed as achieving indulgence (regulation), a pleasure (health) goal should be less activated than a health (pleasure) goal (see propositions 2 and 4).

Experiment 1A collected two additional measures. Owing to the difficulty of understanding whether participants were making inferences of goal commitment and goal progress toward healthy eating, we measured these inferences. Owing to a concern that specific emotional states might be influencing the evaluation of specific classes of food (e.g., Ramanathan and Williams 2007), a more detailed set of measures was administered.

## Method

*Participants and Design.* One hundred twenty-six undergraduate students participated in the experiment for extra credit. The design was a 2 (initial behavior: indulge vs. regulate) × 2 (subjective goal state: activated vs. achieved) × 3 (word type: pleasure vs. health) mixed design. The initial behavior and subjective goal state factors were manipulated between subjects, while word type was manipulated within subjects.

*Procedure and Stimuli.* We used the same procedure and stimuli as those of experiment 1 with three exceptions. First, instead of providing food desirability ratings, participants were told that they would perform an attention task involving decisions about whether certain letter strings were or were not words. This task replicated that of the "supporting evidence" of the pilot experiment and used the same 10 pleasure- and 10 health-related words plus 10 neutral words and 30 nonwords. Second, we measured specific emotions after participants performed the lexical decision task. Following a procedure used by Ramanathan and Williams (2007), we asked participants to which degree (1 [not at all]–9 [very much]) they were experiencing a series of emotions in response to having eaten (not eaten) the chocolate truffle. Participants were asked about positive (e.g., happy) and negative (e.g., frustrated) hedonic emotions and positive (e.g., proud) and negative (e.g., guilty) self-conscious emotions. Third, after measuring emotional states, we asked participants in the activated goal conditions how committed they were to healthy eating after performing the initial behavior (1 [not committed at all]–9 [very committed]). We asked participants in the achieved goal conditions how much progress they thought they had made toward healthy eating after performing the initial behavior (1 [no progress at all]–9 [a lot of progress]). This last measure was designed to address the alternative hypothesis that perceptions of commitment and process were responsible for the results of experiment 1.

## Results

*Reaction Times.* The responses from the lexical decision task were prepared for analysis by removing incorrect identifications of words as nonwords (5.3%). We performed

a natural log transformation of reaction times for correct identifications of words. Those that exceeded three standard deviations from their cell mean were eliminated from the analysis (.6%; Bargh and Chartrand 2000; Fazio 1990). Reaction times were averaged to generate one score for each type of word (e.g., pleasure-related words, health-related words) for each participant.

The average ratings of the sets of 10 items are presented in figure 3. A repeated-measures ANOVA revealed a significant three-way interaction of initial behavior, subjective goal state, and word type ($F(1, 122) = 25.42, p < .01$). The behavior by word type interaction was significant in the goal activated condition ($F(1, 123) = 11.63, p < .01$). Participants were faster to identify words related to pleasure than words related to health in the indulge condition ($M_{Pleasure} = 637$ milliseconds, $M_{Health} = 662$ milliseconds; $F(1, 122) = 4.24, p < .05$). Participants were faster to identify words related to health than words related to pleasure in the regulate condition ($M_{Pleasure} = 647$ milliseconds, $M_{Health} = 613$ milliseconds; $F(1, 122) = 7.65, p < .01$).

The behavior by word type interaction was significant in the goal achieved condition ($F(1, 123) = 13.74, p < .01$). Participants were slower to identify words related to pleasure than words related to health in the indulge condition ($M_{Pleasure} = 656$ milliseconds, $M_{Health} = 633$ milliseconds; $F(1, 122) = 3.99, p < .05$). Participants were slower to identify words related to health than words related to pleasure in the regulate condition ($M_{Pleasure} = 622$ milliseconds, $M_{Health} = 661$ milliseconds; $F(1, 122) = 10.61, p < .01$).

*Commitment and Progress.* The patterns of activation implied by the lexical decision task were not related to participants' inferences of goal commitment or progress. In the activated goal condition, participants did not claim to be more committed to healthy eating after regulating ($M = 6.23$) than after indulging ($M = 6.97; F(1, 122) = 2.09, p > .15$). In the achieved goal condition, participants did not claim to have made more progress toward healthy eating after regulating ($M = 4.78$) than after indulging ($M = 4.32; F(1, 122) = 1.45, p > .15$).

*Emotions.* In order for specific emotions to account of the results of experiment 1, there must be (1) a three-way interaction between initial behavior, subjective goal state, and the contrast between positive and negative hedonic emotions, (2) a three-way interaction between behavior, subjective goal state, and the contrast between positive and negative self-conscious emotions, or (3) a two-way interaction between behavior and subjective goal state on one of the four measures of emotions. These three-way and two-way interactions were not significant ($F < 1$). Interestingly, positive hedonic emotions (e.g., happiness) were higher in the indulge condition ($M = 5.13$) than in the regulate condition ($M = 4.47; F(1, 122) = 6.03, p < .05$), and negative self-conscious emotions (e.g., guilt) were higher in the indulge condition ($M = 3.35$) than in the regulate condition ($M = 1.89; F(1, 122) = 16.60, p < .01$). These results are consistent with previous findings about the role of mixed emotions in consumer behavior (Aaker and Williams 2002).

## Discussion

The reaction time evidence of experiment 1A supports the PPG model. When participants were engaged in initial goal pursuit, the corresponding goals were more activated. When the same behaviors were framed as goal achievement, the competing goals rebounded and were more activated. We note that the procedure made no mention of the com-

**FIGURE 3**

EXPERIMENT 1A: THE INFLUENCE OF INDULGING/REGULATING AND SUBJECTIVELY ACTIVATING/ACHIEVING A GOAL AT TIME 1 ON THE ACCESSIBILITY OF PLEASURE AND HEALTH GOAL CONCEPTS
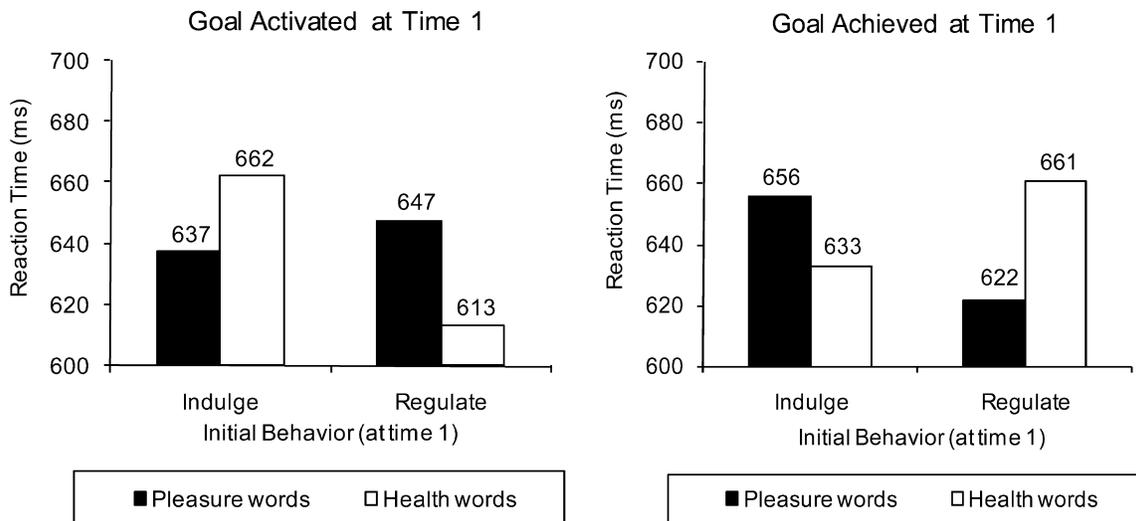
peting goal. Goal conflict was implicit. Thus, it should not be surprising that self-reports of goal commitment and goal progress did not vary across the indulge and the regulate conditions during goal activation and goal achievement, respectively. The procedure does not encourage the creation and monitoring of performance standards. Instead, the procedure takes advantage of the preexisting association between indulgent and regulatory behavior. Behavior and inhibitory associations between goals influence the patterns of activation between these goals and the valuation of behaviors associated with these goals.

## EXPERIMENT 2

Experiment 2 further explores how the PGG model and the goal management model proposed by Fishbach and Dhar (2005) may complement each other. The experiment investigates multiple goal pursuit when people are encouraged to monitor goal commitment or progress versus when people are not encouraged to monitor goal commitment or progress. When people actively monitor how an initial behavior affects goal commitment or progress, commitment and progress will influence subsequent behavior. When there is no active monitoring of how an initial behavior affects goal commitment or progress, the PGG system will guide behavior (see predictions below).

### Method

*Participants and Design.* Participants were 160 undergraduate students who participated in the experiment for extra credit. The experiment investigated regulatory behavior. The design was a 2 (initial behavior: full regulation vs. partial regulation) × 3 (monitoring: commitment, progress, none) × 3 (means type: tasty food, healthy food, neutral food) mixed design. The initial behavior and monitoring factors were manipulated between subjects, while means type was manipulated within subjects.

*Procedure and Stimuli.* The procedure was similar to the goal-activated-regulate condition of experiment 1. The only differences were that (1) the bag contained three truffles, (2) participants in the actively monitored commitment condition were asked to indicate their commitment to healthy eating (1 [not committed at all]–9 [very committed]) prior to evaluating the 30 food items, (3) participants in the actively monitored progress condition were asked to indicate their progress toward healthy eating (1 [no progress at all]–9 [a lot of progress]) prior to evaluating the 30 food items, and (4) participants in the no monitoring (passive guidance) condition were asked to indicate their progress toward healthy eating after evaluating the 30 food items by referring back to the chocolate episode. This progress measure was added because we were curious as to whether participants would make the same inference of progress in the active and passive conditions. Participants in the full regulation condition ate no truffles, and participants in the partial regulation condition ate one truffle.

### Predictions

Consistent with the predictions of the goal commitment and progress model, active monitoring of goal commitment should increase commitment to the regulation goal in the full regulation condition relative to the partial regulation condition. As a consequence, people should have a stronger preference for healthy food as compared to tasty food in the full regulation condition. Similarly, active monitoring of goal progress should increase perception of progress in the full regulation condition relative to the partial regulation condition. As a consequence, people should have a stronger preference for tasty food items compared to healthy food items in the full regulation condition. Consistent with the predictions of the PGG model, we expected that people would behave consistently with their initial behavior. People in the full regulation condition should have a stronger preference for healthy food as compared to tasty food. People in the partial regulation condition should have a stronger preference for tasty food as compared to healthy food. These preferences should be unrelated to perceptions of goal progress because goal progress is irrelevant to the PGG system.

### Results

*Commitment and Progress.* The mean responses to the goal commitment and progress questions are shown in figure 4. There are three critical tests. First, participants in the actively monitored commitment condition were more committed to healthy eating in the full regulation condition than in the partial regulation condition ($M_{\text{Full}} = 6.96$, $M_{\text{Partial}} = 4.17$; $F(1, 154) = 18.44$, $p < .01$). Second, participants in the actively monitored progress condition perceived more progress toward healthy eating in the full regulation condition than in the partial regulation condition ($M_{\text{Full}} = 5.90$, $M_{\text{Partial}} = 2.60$; $F(1, 154) = 27.81$, $p < .01$). Finally, participants in the no monitoring condition perceived more progress toward healthy eating in the full regulation condition than in the partial regulation condition ($M_{\text{Full}} = 5.25$, $M_{\text{Partial}} = 3.54$; $F(1, 154) = 7.35$, $p < .01$). Interestingly, while in experiment 1, participants who did not eat the truffle did not indicate more progress toward healthy eating than those who ate the truffle, they did here. The fact that there were three chocolate truffles in this experiment may have influenced the accuracy of people's inferences.

*Food Preferences.* The average ratings of the sets of 10 items are presented in figure 4. A repeated-measures ANOVA revealed a significant three-way interaction of initial behavior, monitoring, and means type ($F(4, 308) = 10.32$, $p < .01$). The monitoring by means type interaction was significant in the full regulation condition ($F(4, 310) = 6.96$, $p < .01$). Participants assigned lower ratings to the tasty food items than to the healthy food items in the commitment condition ($M_{\text{Tasty}} = 47.1$, $M_{\text{Healthy}} = 61.5$; $F(1, 154) = 8.07$, $p < .01$). Participants assigned higher ratings to the tasty food items than to the healthy food items in the progress condition ($M_{\text{Tasty}} = 61.7$, $M_{\text{Healthy}} = 51.9$; $F(1, 154) = 5.85$,

EXPERIMENT 2: THE INFLUENCE OF FULL/PARTIAL REGULATION AND MONITORING ON THE SUBSEQUENT DESIRE FOR FOOD
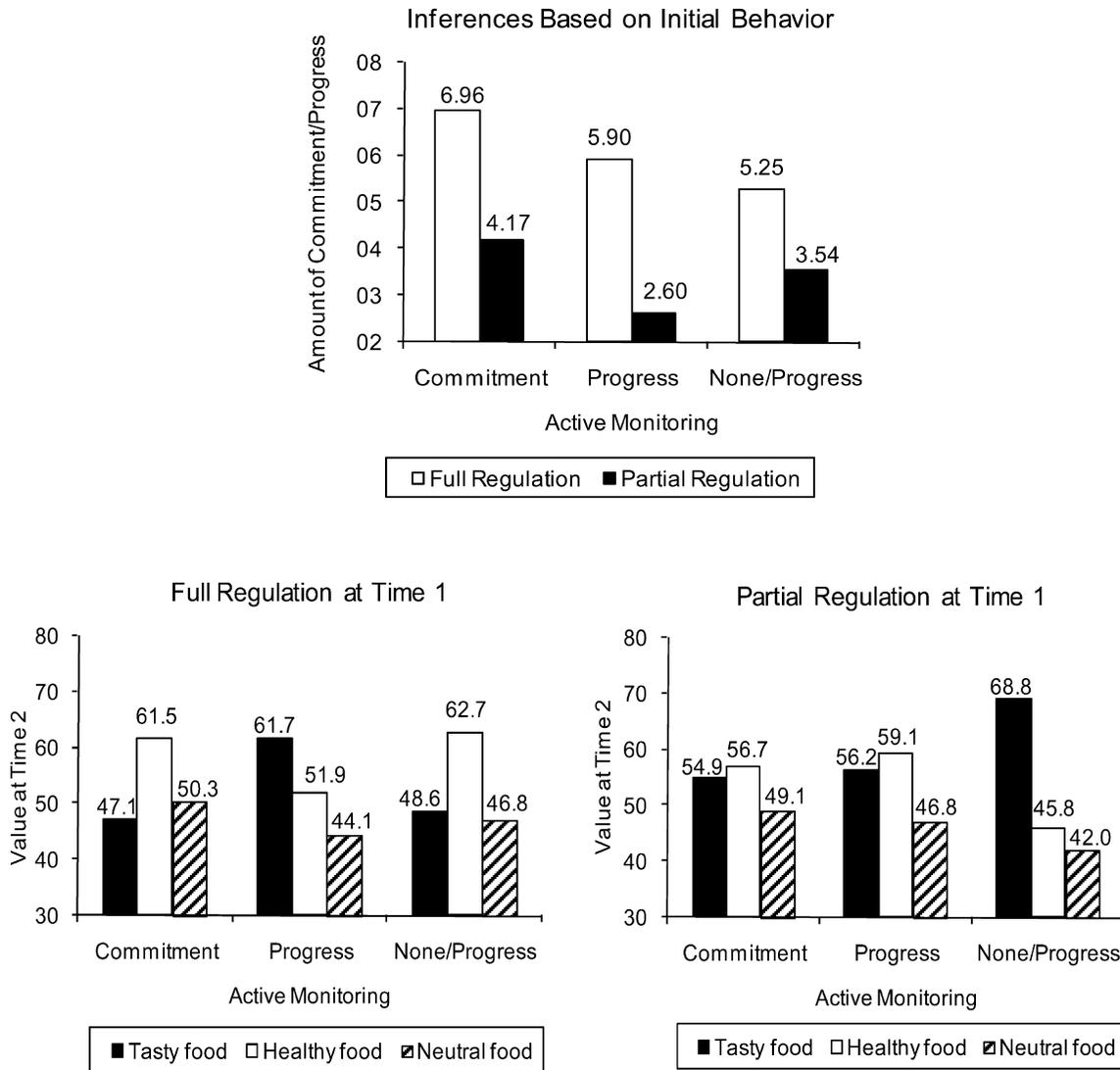


Inferences Based on Initial Behavior



Full Regulation at Time 1



Partial Regulation at Time 1

$p = .01$). Participants assigned lower ratings to the tasty food items than to the healthy food items in the no monitoring condition ($M_{\text{Tasty}} = 48.6$, $M_{\text{Healthy}} = 62.7$; $F(1, 154) = 7.44$, $p < .01$). There was no influence of monitoring on the ratings of the neutral food items ($M_{\text{Commitment}} = 50.3$, $M_{\text{Progress}} = 44.1$, $M_{\text{No Monitoring}} = 46.8$; $F(1, 154) = 1.72$, $p > .10$).

The monitoring by means type interaction was significant in the partial regulation condition ($F(4, 310) = 8.13$, $p < .01$). Participants assigned equal ratings to the tasty and healthy food items in the commitment condition ($M_{\text{Tasty}} = 54.9$, $M_{\text{Healthy}} = 56.7$; $F < 1$). Participants assigned equal ratings to the tasty and healthy food items in the progress condition ($M_{\text{Tasty}} = 56.2$, $M_{\text{Healthy}} = 59.1$; $F < 1$). Participants assigned higher ratings to the tasty food items than to the healthy food items in the no monitoring condition

($M_{\text{Tasty}} = 68.8$, $M_{\text{Healthy}} = 45.8$; $F(1, 154) = 22.99$, $p < .01$). There was no influence of monitoring on the ratings of the neutral food items ($M_{\text{Commitment}} = 49.1$, $M_{\text{Progress}} = 46.8$, $M_{\text{No Monitoring}} = 42.0$; $F(2, 154) = 2.04$, $p > .10$).

## Discussion

The results provide support for our claim of a PGG system. In the full regulation condition, participants in the no monitoring condition remained consistent with their initial behavior and preferred healthy food to tasty food. This preference was inconsistent with reported progress. If participants had perceived more progress in the full regulation condition, then they should have preferred tasty food, similar to the actively monitored progress condition participants. In

the partial regulation condition, participants in the no monitoring condition remained consistent with their initial behavior and preferred tasty food to healthy food. This preference was inconsistent with the null preferences expressed by actively monitored commitment and actively monitored progress participants. The fact that the results of the no monitoring condition do not match the results of either of the active monitoring conditions suggests that perceptions of commitment and progress were not guiding preferences. Together, these results are evidence for two types of goal conflict management systems. When people make inferences about goal commitment and goal progress, these inferences guide subsequent behavior. When inferences about goal commitment and goal progress are not available, the PGG system guides subsequent behavior.

## EXPERIMENT 3

The objective of experiment 3 is to investigate a boundary condition of the PPG model and active goal management models. The critical manipulation was whether people initially engaged in a behavior or were told about the behavior of another person. Similar to prior studies, we anticipated that engaging in a behavior would encourage a participant to rely on the PGG system. To the extent the behavior was goal activating, participants should behave consistently. However, when participants were told about the behavior of another person, we anticipated that they would try to make inferences about the behavior and engage the active goal guidance system. To the extent participants inferred that an initial behavior resulted in goal achievement (i.e., progress), they should predict that another person would engage in inconsistent behavior.

### Method

*Participants and Design.* Participants were 95 undergraduate students who participated in the experiment for extra credit. The design was a 2 (initial behavior: indulge vs. regulate) × 2 (type of behavior: experienced vs. hypothetical) × 3 (means type: tasty food, healthy food, neutral food) mixed design. Initial behavior and type of behavior were manipulated between subjects, while the means type factor was manipulated within subjects.

*Procedure and Stimuli.* In the experienced behavior conditions, the procedure replicated the goal-activated conditions in experiment 1. Participants in the hypothetical behavior condition read the same scenario with two exceptions. First, the scenario described "Mr. A" rather than "you" (i.e., participants were told about the behavior of Mr. A). Second, they were not exposed to the truffle. Except for these two changes, the hypothetical behavior conditions had the same procedure as the experienced behavior conditions. The means evaluation task was slightly modified in the hypothetical behavior conditions so that questions were about "Mr. A's" food desires.

*Pretest.* A pretest was conducted to confirm that the Mr. A scenario encouraged participants to infer goal achievement (i.e., progress). We presented the Mr. A scenarios (indulge vs. regulate) to a separate group of participants ($n = 24$) and asked them to indicate to which extent they thought Mr. A. had achieved his goal to indulge (eat healthy food) in the indulge (regulate) condition (1 [did not achieve it at all]–9 [totally achieved it]). The mean response in the indulge ($M = 7.50$) and the regulate ($M = 7.75$) conditions was significantly different from the midpoint of the scale ($t(11) = 4.38$, $p < .01$; $t(11) = 6.42$, $p < .01$).

### Results

Means are presented in figure 5. A repeated-measures ANOVA revealed a significant three-way interaction of initial behavior, type of behavior, and means type ($F(2, 182) = 32.48$, $p < .01$). The initial behavior by means type interaction was significant in the experienced behavior condition ($F(2, 184) = 7.39$, $p < .01$). Participants assigned higher ratings to the tasty food items than to the healthy food items in the indulge condition ($M_{Tasty} = 59.0$, $M_{Healthy} = 40.7$; $F(1, 91) = 7.28$, $p < .01$). Participants assigned equal ratings to the tasty and the healthy food items in the regulate condition ($M_{Tasty} = 45.0$, $M_{Healthy} = 54.9$; $F(1, 91) = 2.11$, $p > .05$). The difference, however, was in the expected direction. There was no influence of the manipulation on the ratings of the neutral food items ($M_{Indulge} = 41.7$, $M_{Regulate} = 38.8$; $F < 1$).

The initial behavior by means type interaction was significant in the hypothetical behavior condition ($F(2, 184) = 28.39$, $p < .01$). Participants assigned higher ratings to the healthy food items than to the tasty food items in the indulge condition ($M_{Tasty} = 32.7$, $M_{Healthy} = 66.7$; $F(1, 91) = 28.41$, $p < .01$). Participants assigned higher ratings to the tasty food items than to the healthy food items in the regulate condition ($M_{Tasty} = 63.0$, $M_{Healthy} = 45.1$; $F(1, 91) = 8.25$, $p < .01$). There was no influence of the manipulation on the ratings of the neutral food items ($M_{Indulge} = 45.1$, $M_{Regulate} = 48.5$; $F < 1$).

### Discussion

The results of experiment 3 show that when participants experience a goal-activating behavior, their PGG system is engaged, and they behave in accordance with the initial behavior. When participants are asked to make predictions about a hypothetical behavior, their active goal guidance system is engaged. In our scenario, the initial hypothetical behavior allowed the participants to infer goal achievement and predict that a person would value countervailing behaviors. This result is consistent with prior investigations into hypothetical behaviors. Dhar and Simonson (1999) show that when there is a conflict between health and pleasure goals, people predict that others will behave inconsistently after pursuing one of the goals (e.g., choose a tasty dessert after having eaten a healthy main course).

**FIGURE 5**

EXPERIMENT 3: THE INFLUENCE OF INDULGING/REGULATING AND EXPERIENCING/BEING TOLD ABOUT A BEHAVIOR AT TIME 1 ON THE SUBSEQUENT DESIRE FOR FOOD
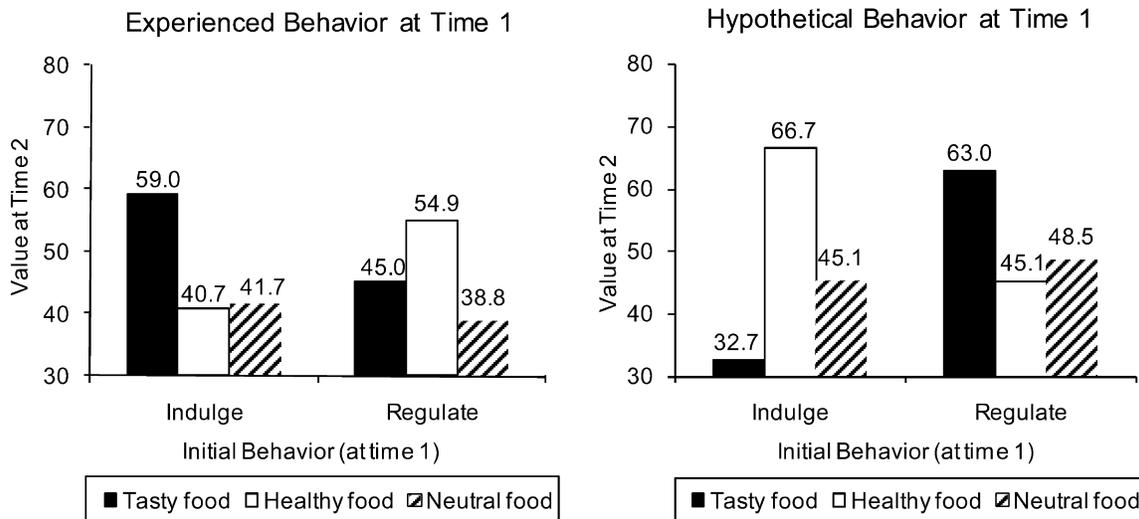


## EXPERIMENT 4

The PGG model predicts that a behavior influences goal activation, which in turn influences the valuation of associated means. If this is true, eating a chocolate truffle, as compared to resisting it, should increase the desirability for any product associated with a pleasure goal (e.g., expensive products that bring status to people). In other words, the pleasure goal is not specific to food but, rather, is related to any means that can be perceived as pleasurable.

## Method

*Participants and Design.* Participants were 170 undergraduate students who participated in the experiment for extra credit. The design was a 2 (initial behavior: indulge vs. regulate) × 2 (means type: status products vs. healthy food) between-subjects design. Means type was made a between-subjects factor owing to the different contexts in which these two types of items would be evaluated, in this experiment, and purchased, in a real-life situation.

*Procedure and Stimuli.* The procedure replicated that of the activated goal conditions of the previous experiments with one difference. Participants in the status products condition were told to assume that they went shopping and to indicate how much they wanted each of 10 products: expensive new watch, dressy designer shirt, Apple laptop, expensive jewelry, GPS system for your car, cruise on a high-end ship, new digital camera, name brand pair of jeans, home theater, and 49-inch plasma TV. A pretest indicated that these products were considered symbols of status. The stimuli were the same as those of the previous experiments in the healthy food condition (10 pictures of healthy food items).

Participants in the healthy food condition received instructions that were similar to those used in experiment 1.

## Results

The average ratings of the sets of 10 items are presented in figure 6. There was an initial behavior by means type interaction ($F(1, 166) = 20.41$, $p < .01$). A simple main ef-

**FIGURE 6**

EXPERIMENT 4: THE INFLUENCE OF INDULGING/REGULATING AT TIME 1 ON THE SUBSEQUENT DESIRE FOR STATUS PRODUCTS AND HEALTHY FOOD
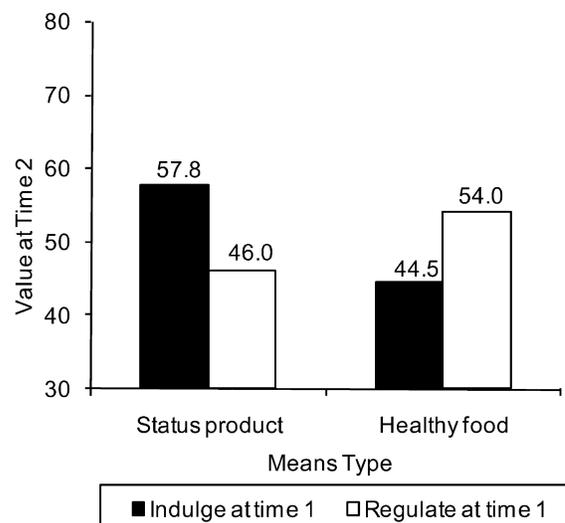
fect test showed a significant effect of initial behavior on the evaluation of the status products. Participants in the indulge condition assigned significantly higher ratings than those in the regulate condition ($M_{\text{Indulge}} = 57.8$, $M_{\text{Regulate}} = 46.0$; $F(1, 166) = 13.33$, $p = .01$). There was a significant effect of the initial behavior on the evaluation of the healthy items condition. Participants in the regulate condition assigned significantly higher ratings than participants in the indulge condition ($M_{\text{Indulge}} = 44.5$, $M_{\text{Regulate}} = 54.0$; $F(1, 166) = 7.67$, $p = .01$).

## Discussion

Experiment 4 provides evidence that the performance of a behavior leads to goal activation and (de)valuation of an array of behaviors. Eating a chocolate truffle led to more desire for status products (see Wadhwa, Shiv, and Nowlis [2008] for similar findings). Resisting a chocolate truffle led to more desire for healthy food. Posttest questioning of our participants indicated that 80.4% of the participants in the status product condition saw no connection between their initial behavior and their product ratings. Most of the remaining participants mentioned a relationship between their mood state and the product ratings, but this was usually in the opposite direction (i.e., "not eating the truffle made me want those products to compensate for it"). This lack of awareness of the influence of the initial behavior on the desirability ratings is reasonable given the operations of the PGG system.

## EXPERIMENT 5

Experiment 5 seeks to understand how the PGG system operates in the presence of previously activated goals. More specifically, we investigate whether the same behavior can be represented differently in the goal system (i.e., increasing the level of activation of vs. achieving a goal) depending on whether the level of activation of a certain goal is high prior to the performance of a behavior. The PGG model predicts that a behavior will change the representation of a previously activated goal when the goal and the behavior are compatible. For example, if a pleasure goal is already at a high level of activation when indulgent behavior is performed, the behavior will achieve the pleasure goal, which will result in the rebound of the health goal (i.e., higher desire for healthy food than for tasty food). However, if a pleasure goal is at a high level of activation when regulatory behavior is performed, the behavior will not achieve the pleasure goal, which will result in maintenance of the activation level of this goal (i.e., higher desire for tasty food than for healthy food).

## Method

*Participants and Design.* Participants were 267 undergraduate students who participated in the experiment for extra credit. The design was a 3 (goal prime: pleasure, health, neutral) × 3 (initial behavior: indulge, regulate, con-

trol) × 3 (means type: tasty food, healthy food, neutral food) mixed design. The primed goal and initial behavior factors were manipulated between subjects, while means type was manipulated within subjects.

*Procedure and Stimuli.* The procedure consisted of three steps, supposedly three unrelated studies: goal prime, performance of behavior, judgment of food items. Participants initially performed a priming procedure based on the procedures of Srull and Wyer (1979). We presented 10 sets of words and asked participants to unscramble those words to form meaningful sentences. Each sentence contained a word that primed a goal. In the pleasure prime condition, the task involved unscrambling sets of words such as "delightful the was opportunity," for which the correct sentence is "the opportunity was delightful." In the health prime condition, the task involved unscrambling sets of words, such as "her appropriate diet was," for which the correct sentence is "her diet was appropriate." In the neutral prime condition, we changed the key word of sentences in the other conditions. The task involved unscrambling sets of words, such as "her appropriate comment was," for which the correct sentence is "her comment was appropriate." After unscrambling 10 sentences, participants were told that they were done with the first study.

Two-thirds of the participants then followed the same truffle tasting (indulgent behavior condition) and resistance (regulatory behavior condition) procedure as that of experiment 1, while one-third of the participants (control, no-behavior condition) performed a filler task instead of participating in the "truffle study." All participants were finally asked to indicate how much they desired 10 tasty, 10 healthy, and 10 neutral food items at the moment.
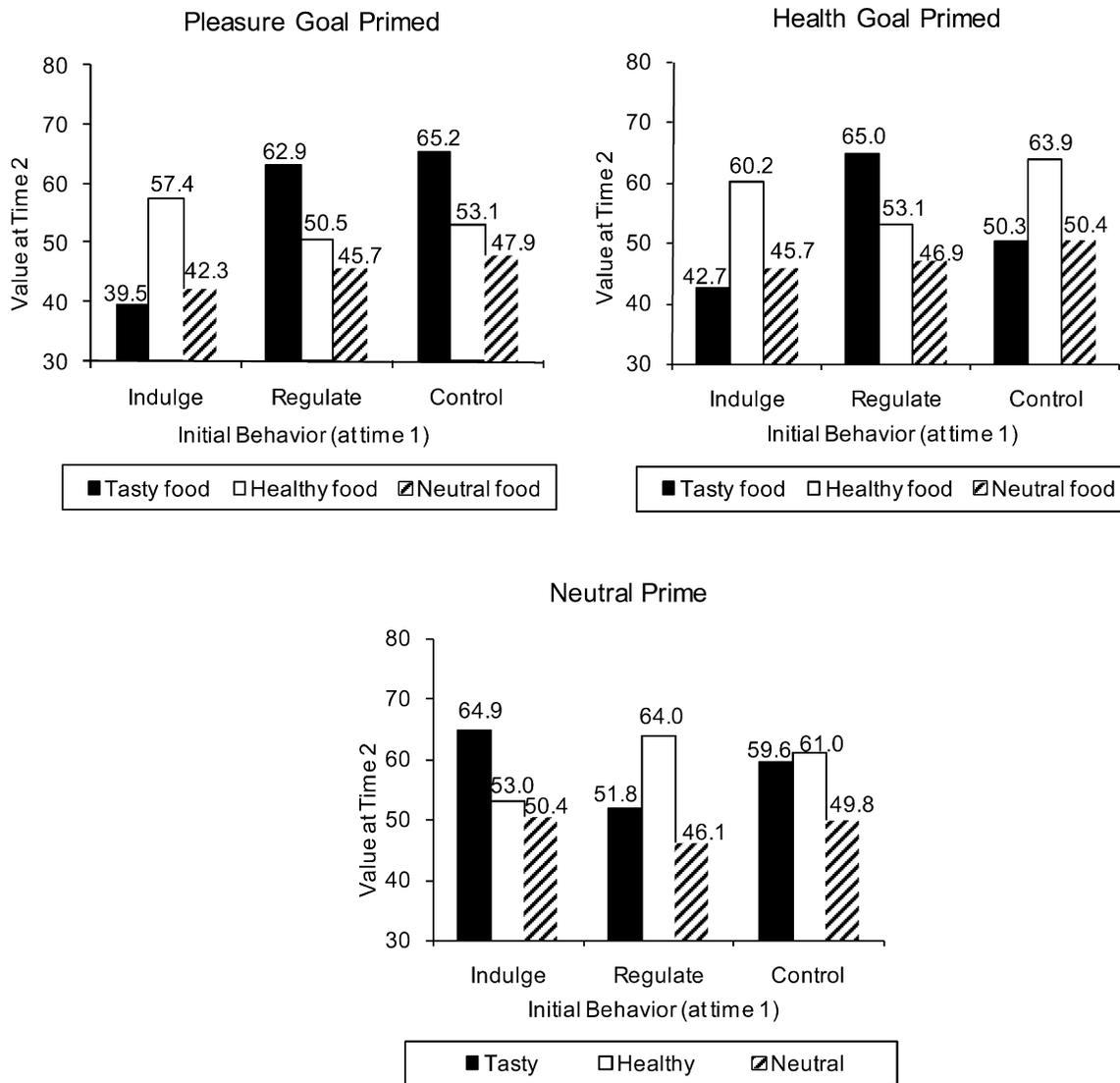
## Results

The average ratings of the sets of 10 items are presented in figure 7. A repeated-measures ANOVA revealed a significant three-way interaction of goal prime, behavior, and means type ($F(8, 516) = 10.69$, $p < .01$). The behavior by means type interaction was significant in the pleasure goal prime condition ($F(4, 520) = 6.58$, $p < .01$). Participants assigned higher ratings to the healthy food items than to the tasty food items in the indulge condition ($M_{\text{Tasty}} = 39.5$, $M_{\text{Healthy}} = 57.4$; $F(1, 258) = 13.49$, $p < .01$). Participants assigned higher ratings to the tasty food items than to the healthy food items in the regulate condition ($M_{\text{Tasty}} = 62.9$, $M_{\text{Healthy}} = 50.5$; $F(1, 258) = 5.96$, $p < .05$). Participants primed with a pleasure goal also assigned higher ratings to the tasty food items than to the healthy food items in the control, no-initial-behavior condition ($M_{\text{Tasty}} = 65.2$, $M_{\text{Healthy}} = 53.1$; $F(1, 258) = 8.39$, $p < .05$). The manipulation did not influence the ratings of the neutral food items ($M_{\text{Indulge}} = 42.3$, $M_{\text{Regulate}} = 45.7$, $M_{\text{Control}} = 47.9$; $F(2, 258) = 1.37$, $p > .25$).

The behavior by means type interaction was significant in the health goal prime condition ($F(4, 520) = 5.85$, $p < .01$). Participants assigned higher ratings to the healthy food items

**FIGURE 7**

EXPERIMENT 5: THE INFLUENCE OF PLEASURE/HEALTH GOAL PRIMES AND INDULGENCE/REGULATION
ON THE SUBSEQUENT DESIRE FOR FOOD



in the neutral prime condition ($F(4, 520) = 4.07, p < .01$).
Participants assigned higher ratings to the tasty food items
than to the healthy food items in the indulge condition
($M_{Tasty} = 64.9, M_{Healthy} = 53.0; F(1, 258) = 5.67, p < .05$).
Participants assigned higher ratings to the healthy food items
than to the tasty food items in the regulate condition ($M_{Tasty} = 51.8, M_{Healthy} = 64.0; F(1, 258) = 6.93, p < .01$). Partic-
ipants assigned similar ratings to the tasty and the healthy
food items in the control, no-initial-behavior condition
($M_{Tasty} = 59.6, M_{Healthy} = 61.0; F < 1$). The manipulation
did not influence the ratings of the neutral food items
($M_{Indulge} = 50.4, M_{Regulate} = 46.1, M_{Control} = 49.8; F < 1$).

than to the tasty food items in the indulge condition ($M_{Tasty} = 42.7, M_{Healthy} = 60.2; F(1, 258) = 13.71, p < .01$). Partic-
ipants assigned higher ratings to the tasty food items than to
the healthy food items in the regulate condition ($M_{Tasty} = 65.0, M_{Healthy} = 53.1; F(1, 258) = 6.35, p = .01$). Partici-
pants primed with a health goal also assigned higher ratings
to the healthy food items than to the tasty food items in the
control, no-initial-behavior condition ($M_{Tasty} = 50.3, M_{Healthy} = 63.9; F(1, 258) = 8.86, p < .01$). The manipulation did not
influence the ratings of the neutral food items ($M_{Indulge} = 45.7, M_{Regulate} = 46.9, M_{Control} = 50.4; F < 1$).

The behavior by means type interaction was significant

## Discussion

The results of experiment 5 provide additional evidence of how the PGG system operates. First, when a goal is primed and a person does not engage in a behavior (e.g., the control conditions in the pleasure and health prime conditions), prime-consistent behaviors are most valued. Second, when a goal is primed and a person performs a goal-relevant behavior (e.g., indulgence after pleasure is primed, regulation after health is primed), prime-consistent behaviors are devalued, and prime-inconsistent behaviors become more valued. The rebound effect (i.e., prime-inconsistent behaviors becoming more valued) was most evident for the tasty food items in the health prime condition. Third, when a goal is primed and a person performs a goal-irrelevant behavior (e.g., regulation after pleasure is primed, indulgence after health is primed), prime-consistent behaviors are most valued (similar to the control conditions).

The goal priming literature (e.g., Bargh 2006) demonstrates that primed goals guide subsequent behavior without an individual's awareness of this guidance, hence, focuses on the pleasure, health, and neutral prime control conditions. This literature does not show how performing behaviors (e.g., indulging, regulating) will influence subsequent behavior in the presence of conflicting goals. We explore this issue by showing how the performance of a behavior can change the representation of goals that have been activated without an individual's awareness. The PGG system is capable of changing the representation of a goal to "achieved" if a performed behavior is related to a previously "activated" goal. This goal guidance property leads to a goal rebound effect and the pursuit of a competing goal.

The experiment 5 results did show one anomaly. The neutral prime control condition showed abnormally high desirability for both tasty and healthy food items. We believe these means are specific to this experiment and are not the true baseline desirability levels of the food items. A pretest conducted before experiment 1 showed that the level of desirability for fatty and healthy food items is around 50 on a 1–100 scale. Given that the procedure in the neutral prime control condition was conceptually similar to the procedure in the pretest, we have no explanation for why the tasty and healthy food items means were high in this condition.

## GENERAL DISCUSSION

Evidence from eight experiments suggests that goal conflict can be passively managed. An initial behavior increases the level of activation of the goal it serves and has a positive impact on the value of related means (pilot experiment, experiments 1 and 5). Yet, if the initial behavior results in objective or subjective goal achievement, the goal is released, and competing goals rebound, leading to an increased valuation of competing means (pilot experiment and experiment 1). Behavioral consistency and inconsistency are the result of goal concept activation and inhibition processes (supporting evidence of pilot experiment and experiment 1A) and can be guided both by a PGG system or an active

goal guidance system (experiments 2 and 3). Finally, performing a behavior can change the representation of previously activated goals and generate a competing goal rebound effect (experiment 5).

The findings provide insight into how goal guidance influences rebound effects. To date, the goal priming literature has discounted the possibility of a passive rebound effect. For example, Shah et al. (2002, 1278) argue that continued inhibition of competing goals "may render them less salient and less likely to be subsequently pursued once the focal goal is attained or abandoned." Further, the goal priming literature relegates rebound effects to active, inferential processes. Shah et al. account for rebound effects (e.g., Macrae et al. 1994; Wegner and Pennebaker 1993) by arguing "that the completion or termination of a specific goal pursuit may cause previously inhibited alternatives to flood back into consciousness, increasing the likelihood that they will be pursued" (2002, 1278). Our results are at odds with these conclusions. We show that rebound effects can occur passively in the presence of conflicting goals. This property of the PGG system may be a consequence of evolutionary forces. To the extent that pursuing the same goal single-mindedly would be unhealthy, temporarily inhibited goals should be pursued once active goals are achieved.

Our findings also indicate that the pairing of a goal and a behavior may moderate behavioral consistency and inconsistency by a process other than inferences of goal commitment and goal progress (Fishbach and Dhar 2005; Fishbach et al. 2006). Goal activation and goal achievement vs. goal commitment and goal progress seem to be complementary processes moderated by the extent to which people actively monitor their goal state and compare it to a desired goal state. As evident in experiment 2, the presence of such inferential activities may help regulation when people perceive that past (indulgent) behavior has hindered their progress toward regulation. Future research is needed to investigate situations that motivate active monitoring of the goal state vs. passive goal pursuit. For instance, contexts involving social comparisons (e.g., "how much do I study as compared to others?") may be more sensitive to perceptions of goal progress and goal commitment, while contexts that do not involve comparisons and planning may be more sensitive to passive goal guidance.

These findings suggest that small acts of resistance and indulgence may have a powerful impact on people's resolution of a self-control conflict. For example, saying "no" to an indulgence opportunity early in the evening may encourage similar behaviors as the evening progresses. Yet, people are often unable to predict how current behaviors will influence subsequent behaviors. For example, people may predict that the best way to control what they eat is to engage in a small indulgence. In reality, a small indulgence may prime a pleasure goal and lead to more, not less, indulgence (Wadhwa et al. 2008). Thus, decisions based on active goal management principles may result in unplanned behavior when the PGG system becomes operative (i.e., a

person is distracted or becomes too tired to engage in active goal monitoring).

Finally, one limitation of this research is that the same procedure, which involved eating and resisting a chocolate truffle, was used for every study. Although we believe that the findings are representative of many consumption situations (e.g., someone gets a fine wine to impress others at a dinner and this increases the level of accessibility of an "impressing others" goal and directs subsequent behavior), using alternative manipulations and dependent measures would certainly provide stronger evidence for the operations of the PGG system. A second limitation is that the experienced behavior conditions in our procedure featured an initial scenario (i.e., "Imagine that you got home and found a chocolate truffle in the kitchen"). The fact that, in experiment 3, the Mr. A scenario led to different behaviors from those in the experienced behavior conditions makes us confident that the initial scenarios in the experienced behavior conditions did not generate unnatural results. However, future research would benefit from using behaviors performed in a natural environment (i.e., choosing to buy a treat in the bakery section of the supermarket) and observing subsequent behavior.

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