

The Explicit and Implicit Ways of Overcoming Temptation

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The ability to exercise self-control and overcome temptation is the key to achieving many positive life outcomes, including academic and career success, good health, and strong social ties. Further, the lack of self-control is associated with negative outcomes, including addiction, overspending, and crime (Baron, 2003; Baumeister & Tierney, 2011; Gottfredson & Hirschi, 1990; Loewenstein, 1996; Mischel, Cantor, & Feldman, 1996; Thaler & Shefrin, 1981). Indeed, the modern lifestyle of people in western societies is a constant battle for self-control: people have the power and the skills to achieve positive life outcomes, but they often lack the ability to resist temptations that prevent these outcomes.

A self-control dilemma is an internal conflict between a high-order and often long-term goal and a low-order and often short-term temptation (Ainslie, 1992; Carver, 2005; de Ridder, Lensvelt-Mulders, Finkenauer, Stok, & Baumeister, 2012; Duckworth & Kern, 2011; Hoch & Loewenstein, 1991; Rachlin, 2000; Thaler, 1991). For example, a diner may want to keep in shape while enjoying a fatty dessert and a parent may hope to prevent future whining while also being willing to quiet a complaining child with candy. What marks a successful exercise of self-control, in turn, is the pursuit of high-order goals and overcoming temptation.

Traditionally, self-control researchers focused on the explicit processes of resisting temptation, suggesting both the experience of a goal-temptation conflict and the response to the conflict require conscious awareness and effort (Mischel, Shoda, & Rodriguez, 1989; Muraven & Baumeister, 2000). A main conclusion from past research is that self-control is inherently difficult and bound to fail if overused. Although we agree self-control can be a conscious and taxing process, we argue it is not always. An implicit and non-conscious operation mode of self-control exists, and it enables a smooth pursuit of long-term interests (Alberts, Martijn, Greb, Merkelbach, & De Vries, 2007; Ferguson, 2008; Fishbach, Friedman, & Kruglanski, 2003;

Fitzsimons & Bargh, 2004; Kroese, Adriaanse, Evers, & De Ridder, 2011; Wiers & Stacy, 2006). We further suggest that when people become aware they are exercising self-control, this awareness arises partially because the conflict they face is particularly difficult and therefore not resolved prior to the recruitment of conscious awareness. By definition then, a self-control response that requires awareness is one that is elicited in reaction to a difficult-to-resolve conflict and will therefore be more likely to fail compared with an implicit self-control response that does not require awareness. Because self-control research mainly focuses on explicit processes (with notable exceptions), a general bias exists in this literature toward self-control failures.

In this chapter, we address the explicit and implicit processes of self-control. Specifically, we investigate the identification of and the response to a self-control conflict, and argue each challenge—identifying and responding to a conflict—involves implicit processes that either accompany or substitute for explicit processes. We use the terms explicit and implicit to refer to the degree of conscious awareness involved in the self-control process. Although assuming awareness varies by degree and represents a continuum is reasonable, for the sake of simplicity (and without compromising accuracy), we refer to two extreme situations: when the self-control process is either completely under conscious awareness or not.

Our analysis of self-control differs in an important aspect from other dual-process models of self-control (Bechara, Noel & Crone, 2006; Fudenberg & Levine, 2006; Hofmann, Friese, & Strack, 2009; Metcalfe & Mischel, 1999; Strack & Deutsch, 2004): we focus on the similarities between the two modes, whereas other research addresses the differences. Other models distinguish between an implicit and associative process that promotes giving in to temptation and an explicit and rule-based (self-control) process that promotes goal adherence. We argue explicit and implicit self-control modes operate in tandem and follow the same basic principles. Our

model, thus, echoes recent discoveries in attitude research. Traditional models of attitudinal control asserted stereotyping is an automatic response that is overridden by controlled processes (Devine, 1989; Fazio, Sanbonmatsu, Powell, & Kardes, 1986). However, according to recent work, the implementation of control can become automatized to the same or a similar extent as the initial activation of the attitude (Monteith, Ashburn-Nardo, Voils, & Czopp, 2002; Moskowitz, Gollwitzer, Wasel, & Schaal, 1999; Payne, 2001; Sherman, et al., 2008). Similarly, we identify situations in which the corrective, self-control response is no less automatic than the direct activation of desire by the presence of temptation. Thus, in our model, both the direct response to temptation with desire and the self-control response that inhibits the desire, involve implicit (as well as explicit) processes.

In what follows, we describe a two-stage model of exercising self-control that suggests self-control success requires a person to first identify a self-control conflict and then retrieve self-control operations designed to increase the motivational strength of the goal and decrease the motivational strength of temptation. We discuss the explicit and implicit processes in each of these stages.

A two-stage model: Identification and resolution

For successful self-control, individuals need to know when and how to exercise restraint (see Figure 1, adopted from Myrseth & Fishbach, 2009). With respect to “when,” people will implement self-control only if they have identified a self-control conflict. At times, the question of identification is trivial. Thus the person who considers losing her temper in a meeting with her boss might easily recognize the long-term consequence of raising her voice at an employer. In addition, self-control researchers often provide their study participants with already identified self-control problems. For example, researchers asked children participants to delay the

gratification of consuming a small candy now in favor of getting a large candy later (Mischel et al., 1989); they requested adult participants to inhibit thinking of a particular concept (e.g., “white bears”; Wegner, Schneider, Carter, & White, 1987) or to inhibit various dominant responses (Muraven & Baumeister, 2000). However, at other times, identification is not trivial, because the cost of a single lack of restraint is negligible; for example, the cost of a single donut for a dieter’s weight, a single cigarette for a smoker’s health, and a single day off for a professional’s career prospects is trivial. We coin the term “epsilon temptation” to describe situations in which the cost of a single indulgence, or unit consumption cost, is negligible, but that of extended consumption may prove serious. Such temptations are pervasive in modern life and pose the problem of conflict identification. We further argue the process of conflict identification is almost always of a non-conscious, implicit nature.

To the extent that a self-control conflict is identified upon presentation of temptation, the person is likely to exert self-control. Although identification processes can then be maintained or re-activated as part of resolving the conflict (e.g., when framing choice as a self-control problem promotes restraint), it is only to the extent that self-control conflict was identified in the first place that people exercise self-control. Our research on counteractive control theory describes the process by which individuals offset the influence of temptation on goal pursuit (Fishbach & Trope, 2005; Myrseth, Fishbach, & Trope, 2009; Sheldon & Fishbach, 2011; Trope & Fishbach, 2000; Zhang & Fishbach, 2010). According to this theory, self-control involves asymmetric shifts in motivational strength: an increase in motivation to pursue a goal and a decrease in motivation to embrace temptation. Such asymmetric shifts may be conscious or not. In what follows, we elaborate on the explicit and implicit operations of identifying conflict and responding to conflict with restraint.

Conflict Identification

Several factors contribute to conflict identification, mostly outside of conscious awareness, although once a conflict has been identified, people may be aware of it.

A. Width

Viewing an action opportunity in relation to future opportunities (i.e., wide bracket) facilitates conflict identification because doing so emphasizes the significant cost of aggregated temptation (Myrseth & Fishbach, 2009). Thus the smoker who says “one cigarette won’t kill me” perceives the temptation in isolation, notes the trivial costs associated with smoking a single cigarette, and likely does not experience a conflict. The smoker who considers smoking this week or this month, however, may be more likely to perceive the cost of smoking for her long-term health, because she considers the impact of aggregated smoking. As an example of the effect of a wide frame, Read, Loewenstein, and Kalyanaraman (1999) found that when choosing several movies for several days simultaneously (i.e., a wide bracket), choosers selected more highbrow than lowbrow movies (e.g., *Schindler’s List* vs. *My Cousin Vinny*) than when they chose sequentially, for one day at a time (i.e., a narrow bracket). People apparently would like to watch highbrow movies but are tempted by lowbrow alternatives; therefore, planning their movie consumption for a period of time helps incorporate some highbrow movies.

Research on frame widths often assumes a conscious process of reasoning through the decision (Rachlin, 2000; Read, Loewenstein, & Rabin, 1999; Read, Loewenstein, & Kalyanaraman, 1999; Sussman & Alter, in press; Wood & Neal, 2007). However, implicit and subtle cues also activate perception of a wide versus narrow bracket and promote conflict identification. In studies that illustrate this possibility, food choices suggesting predictable patterns of repetition promoted self-control more than one-time food choices. For example,

Myrseth and Fishbach (2009) invited passersby to help themselves to an assortment of carrots and chocolates. In one condition, the food stand had a sign saying “April 12th Stand” (a narrow bracket), and in another condition, it said “Spring Food Stand” (a wide bracket). The narrow bracket led to greater consumption of chocolates (vs. carrots) compared with the wide bracket.

B. Consistency

To activate perception of self-control conflict, an individual not only needs to consider a sequence of related choices, but should also see herself consistently making the same choice across these opportunities. If she perceives she will exercise restraint at some opportunities and give in to temptations at others, the perception of a wide bracket would not promote restraint. A behavioral pattern that reflects consistency is titled “highlighting”—restraint promotes further effort to exercise restraint at the next opportunity. For example, a healthy entrée choice can encourage a person to also choose a healthy dessert. A behavioral pattern that reflects absence of consistency is titled “balancing”—restraint provides a psychological license to indulge. For example, a healthy entrée choice can justify an unhealthy dessert choice (Dhar & Simonson, 1999; Fishbach & Dhar, 2005; Fishbach, Dhar, & Zhang, 2006; Fishbach & Zhang, 2008; Koo & Fishbach, 2008).

Several situational cues activate a highlighting versus balancing choice dynamic and thus influence conflict identification. For example, the presentation of goal and temptation options separately, in two separate displays, nonconsciously promotes identification of a self-control conflict and highlighting, whereas presenting these options together, in a single display, nonconsciously hinders conflict identification and promotes balancing. In one experimental demonstration, participants consumed more healthy carrots and fewer unhealthy chocolates when these items were served in separate bowls compared with when they were served together in one

bowl (Fishbach & Zhang, 2008). This study further demonstrated the choice of chocolates in the separate-bowls condition reflected the failure to identify a self-control dilemma: individual differences in the strength of the weight-watching goal (i.e., how much the participant wanted to lose weight) predicted healthy over tempting choice only when the options were presented in separate bowls, but not when they were presented together in the same bowl. Physically presenting the temptation and goal options separately (vs. together) enabled psychological identification of the self-control conflict and the exercise of self-control.

At times, the perception of inconsistency across actions or choices (i.e., balancing) provides a psychological license to indulge or relax one's moral standards (Khan & Dhar, 2006; Mazar & Zhong, 2010; Monin & Miller, 2001). In these situations, people use past or future virtuous choices to justify giving in to temptation in the present. For example, people are more likely to choose a luxury over a utilitarian good after indicating their intent to engage in a charitable act (Khan & Dhar, 2006). Psychological licensing reflects a failure to see a particular choice or action as posing a self-control conflict, because a person assumes her behavior in the present is different than her past or future behavior.

C. Ease of monitoring

When monitoring indulgence is trivial, the individual can (consciously or not) take a mental note of relapses, which in turn ease conflict identification. In contrast, when monitoring is difficult, relapses go unnoticed and do not promote conflict identification. For example, when consuming cookies of irregular and uneven (vs. similar) shape, people often have difficulty monitoring consumption because the unit for monitoring consumption—the number of cookies—is meaningless when the cookies are of different sizes. The result is that consumption of large quantities goes unnoticed (Carter & Fishbach, 2012). Indeed, Wansink and colleagues' research

indicates people rely on implicit cues such as “eat one cookie,” “drink one cup,” and “do not fill up your plate twice” in monitoring consumption. Once these cues are missing or misleading, people fail to monitor indulgence, and increase consumption (Wansink, 2006; Wansink, Painter, & North, 2005; Kahn & Wansink, 2004). Similarly, research documented more deception in the form of exaggerated performance when participants completed a task in a dim (vs. well-lit) room, because monitoring the self in the dark was difficult (Zhong, Bohns, & Gino, 2010).

D. Diagnosticity

People are not only more likely to identify self-control conflict when they are reminded of the consequences of their actions for their goals (as in wide brackets), but they are also sensitive to reminders of how their actions affect how they perceive themselves. People often choose their actions to signal valued traits and identities to the self (Bodner & Prelec, 2001). In turn, actions they deem more self-diagnostic are more likely evoke self-control conflict.

A major cue that an action is diagnostic is how salient it is for the pursuer and, therefore, people are more likely to identify a conflict and exercise self-control for their salient actions. To demonstrate this point, we explored self-control for actions presented as being at the beginning or end of a sequence (Touré-Tillery & Fishbach, 2012a). For many goals, a natural sequence of actions results in their completion, for example, when completing a series of assignments for class or a series of tasks at work. Similarly, for ongoing goals such as maintaining good health or financial responsibility, the perception often exists that some actions are at the beginning and end of a sequence (e.g., the beginning/end of the week), whereas other actions are in the middle. Actions at the beginning and end (vs. middle) of goal sequences are more noticeable and memorable (Greene, 1986; Murdock, 1960); therefore people perceived these actions to be more diagnostic of their own traits and abilities.

Thus, in one study, we documented people's adherence to the Jewish religious tradition of lighting the menorah candles on eight consecutive nights over the Hanukkah holiday. We found people were more likely to light the candles on the first and last nights than on the nights in the middle of the sequence, and, as predicted, the more religious people were, the more likely they were to exhibit this u-shaped pattern in following religious tradition. Importantly, people further believed lighting the menorah on the first and last nights (vs. the middle) is a better signal that a person follows religious traditions. Other studies explored adhering to standards or goals in privacy and documented similar patterns of greater self-control at the beginning and end (vs. middle). For example, participants were less likely to engage in deceit at the beginning and end versus middle of an experiment (Touré-Tillery & Fishbach, 2012a).

Perceptual salience also matters. For example, actions that make noise are more perceptually salient, better activate conflict identification, and evoke greater goal adherence than actions that do not make noise. And when people express their attitudes in color pens (vs. black), those attitudes are more closely related to their long-term goals (Touré-Tillery & Fishbach, 2012b). In these studies, cues that an action is noticeable evoke identification of a self-control problem and greater adherence to important goals.

To summarize, cues that explicitly or implicitly remind people of a self-control conflict promote identification, which is the first step in exercising restraint. A failure to identify a conflict will result in self-control failure that is not accompanied by the exercise of restraint in the first place. We next move to the explicit and implicit self-control responses to conflict.

Exercising Restraint

Self-control counteracts the influence of temptation on goal adherence. The presence of temptation directly decreases the likelihood of goal adherence; however, indirectly, temptation

activates a self-control response, which increases the likelihood of goal adherence. When these two influences of temptation—the direct and indirect—cancel each other out, successful self-control ensues: the individual is no less likely to adhere to the goal when confronting temptation than not (Fishbach & Trope, 2005; Trope & Fishbach, 2000). For example, a college student who is invited to a party before an important exam faces a temptation not to study, which directly decreases her motivation to study. However, indirectly, an invitation to a party triggers the exercise of self-control, which increases her motivation to study. When these two influences of the invitation—the direct and the indirect—cancel each other out, the student successfully resolves the conflict by maintaining the motivation to study when invited to the party.

The strength of the self-control response increases proportionally with the strength of the anticipated temptation in order to diminish the impact of temptation on the individual's behavior. When people anticipate strong temptation, they increase their self-control responses and their performance is improved compared with when they do not anticipate temptation. For example, in the context of mixed-motive interactions (e.g., social dilemmas; Dawes, 1980; Messick & Brewer, 1983), people often recognize the long-term benefits of cooperation outweigh the short-term payoffs of competition but nonetheless feel tempted to compete (DeWitte & De Cremer, 2001). People are then more likely to cooperate when they anticipate barriers to successful outcomes in advance than when they expect doing well will be easy (Sheldon & Fishbach, 2011). In what follows, we address the explicit and implicit self-control responses to temptation, which enable restraint.

Self-control operations

Self-control involves asymmetrically shifting the motivational strengths of conflicting motivations. Goals are strengthened so they may override temptations. Temptations are

weakened so they may be overridden by goals. These asymmetric shifts in motivational strength may be achieved by modulating the situation or its mental representations. These shifts may further involve explicit or implicit operations (see Table 1).

A. Changing the choice situation

Self-control responses that operate on the choice situation enable people to resolve a self-control conflict in advance, before it occurs, by changing the situation so it no longer presents a conflict.

Self-imposed penalties and rewards

Self-imposed penalties and rewards change the actual value of giving in to temptation or pursuing a goal to decrease the incentive to deviate from the goal (Trope & Fishbach, 2000). Diet betting websites that let people write a personal contract with a set penalty for missing their weight-loss goal are one application of self-imposed penalties. Self-imposed reward is a complementary strategy by which people set rewards for meeting their goals. For example, in one study, participants chose to receive their payment on completing a painful procedure only after they finished it, as opposed to before, to maintain their incentive to complete the procedure (Trope & Fishbach, 2000). Whereas imposed penalties decrease motivation to give in to temptation, imposed rewards increase the motivation to adhere to the goal. These strategies require a conscious planning and deliberation; hence they are bound to fail when the person is preoccupied.

Pre-commitment

A pre-commitment strategy restricts the individual's options to pursue goal-consistent behavior (Ainslie, 1992; Ariely & Wertenbroch, 2002; Gourville & Soman, 1998; Meyvis, Oppenheimer, & Bennett, 2010; Schelling, 1984; Strotz, 1956; Thaler & Shefrin, 1981;

Wertenbroch, 1998). For example, the grocery shopper who purchases a large quantity of produce and a small quantity of sweets pre-commits to eat healthily and abstain from unhealthy food until her next trip to the grocery store. The strategy of pre-commitment can require conscious planning, although once certain pre-commitments become a habit, this pattern of goal pursuit and forgoing temptation occurs without conscious awareness (Wood & Neal, 2007).

Implicit approach and avoidance responses

People further engage in implicit processes that shape their choice situations: they approach goals and avoid temptations. For example, the dieter who ushers a waiter to take away her half-finished dessert plate can be mindless of the self-control function of her behavior. People further implicitly pull themselves toward others who facilitate their goals, and move away from those who hinder these goals. For example, a hard-working student may look for the proximity of others who also work hard, and distance herself from those friends who like to party (Fitzsimons & Fishbach, 2010).

Our research documented automatic dispositions to approach goals and avoid temptations by assessing the time people take to respond to goal- and temptation-related words by either pushing a joystick away from themselves or pulling it toward themselves (Fishbach & Shah, 2006). An approach orientation enables faster pulling of a lever, whereas an avoidance orientation enables faster pushing away of a lever (Chen & Bargh, 1999; Markman & Brendl, 2005; Solarz, 1960). Using goal and temptation words (e.g., exercise vs. alcohol), we found faster response to goal-related (vs. temptation) words when participants responded with pulling, and faster response to temptation-related (vs. goal) words when participants responded with pushing. In the academic context, implicit dispositions to approach academic words and avoid

nonacademic words were associated with a higher grade point average; hence implicit dispositions predicted important self-regulatory outcomes.

B. Changing the psychological meaning of choice options

In addition to altering the choice situation, people may alter their motivation to pursue goals and embrace temptation by changing the psychological meaning of these options.

Bolstering goals, devaluing temptations

People bolster the value of goals by linking the attainment of these goals to their self standards (Bandura, 1989) or by elaborating on what makes the goals positive (e.g., important, appealing, attractive, etc.; Beckmann & Kuhl, 1985; Fishbach, Shah, & Kruglanski, 2004; Kuhl, 1984). They may further devalue temptations by disassociating these motives from the self, or ignoring aspects that make temptations positively valued (Zhang, Huang, & Broniarczyk, 2010). The availability of temptations should then affect judgments of their subjective value. When potential temptations are available, they evoke changes in evaluation.

Indeed, our research on explicit valuation presented exercisers on their way out of the gym with a choice between health bars and chocolate bars (Myrseth, Fishbach, & Trope, 2009). Almost everybody chose a health bar to take home with them, and we examined how they evaluated their two available options. For those choosers who evaluated the food options before making a choice, the chocolates represented a tempting alternative to the health bar that was consistent with their long-term health goals. These choosers counteracted this temptation by dampening their positive evaluations of the chocolates relative to the health bars. In contrast, some other choosers in this study evaluated the foods after making their choice. These people rated the health bars and chocolate bars as equally attractive.

Bolstering goals and devaluing temptations take place outside of conscious awareness, and people's lack of awareness secures the effectiveness of evaluative biases. Further research directly demonstrated the implicit manifestation of counteractive evaluations (Fishbach, Zhang, & Trope, 2010). For example, using an implicit evaluation task (Bargh, Chaiken, Govender, & Pratto, 1992; Fazio, Jackson, Dunton, & Williams, 1995), we documented implicit positive evaluations of healthy foods and negative evaluations of unhealthy foods, after participants viewed food temptations they wanted to forgo (e.g., ice cream, fried chicken). Thus people devalued unhealthy foods and bolstered healthy foods only after they considered the various foods that tempt them away from their goals. Notably, participants in this study were aware of the initial exposure to temptation and may have been conscious of the self-control conflict it evoked, but they were unaware of their self-control response.

Hot versus cool construal.

Abstract thinking facilitates self-control because in big-picture thinking, goals weigh more than temptation (Fujita & Han, 2009; Fujita, Trope, Liberman, & Levin-Sagi, 2006; Marguc, Förster, & Van Kleef, 2011). But beyond abstract thinking, the construal of the goal and temptation activities themselves matters. The mental representation of goals and temptations varies between a "hot" and abstract on one extreme to a "cool" and concrete on the other extreme (Kross, Ayduk, & Mischel, 2005; Metcalfe & Mischel, 1999). Whether, for example, a person construes the goal of studying as "gaining knowledge" (abstract) or as "reading pages" (concrete) would then influence pursuit of this goal. An abstract construal of a temptation stimulus "cools it down." For example, in the classic delay-of-gratification paradigm, children were better able to resist the temptation of eating a single marshmallow in order to receive a larger-later reward if they thought of the marshmallows as "white, puffy clouds" or "round, white moons" (a cool

construal) than if they thought of the marshmallows as “sweet and chewy and soft” (a hot construal; Mischel & Baker, 1975). In addition, a concrete, hot construal of a goal makes it more likely to be pursued. For example, research on implementation intentions documented that forming concrete behavioral plans to study facilitates studying among students (Gollwitzer, 1999; Gollwitzer & Brandstätter, 1997). As with other strategies, the construal that promotes self-control is asymmetric: to promote their long-term interests, people think concretely about goals and abstractly about temptation, and these construals likely involve implicit operations.

Setting expectations

Counteractive optimism is a self-control strategy that involves setting optimistic expectations to increase engagement with the goal and decrease engagement with temptation (Zhang & Fishbach, 2010). When people expect an obstacle or a temptation to hinder their goal attainment, they set more optimistic expectations that are asymmetric: they expect greater goal pursuit and less pursuit of temptation. For example, examinees predicted a faster turnover of a take-home exam when they expected it to be difficult (vs. easy) to complete. In another study, students planned to devote more time to studying if they first listed the amount of time they would spend on social activities that day. They further planned to devote less time to social activities if they first listed the amount of time they would spend studying that day.

Research on counteractive optimism documented a somewhat counterintuitive pattern: the greater the obstacle, the more optimistic people are in their goal adherence. We find this pattern using various measures of motivation, from speed of completion, to likelihood of attainment and level of performance. Because optimistic predictions act as performance standards, they implicitly motivate effort investment to achieve the self-imposed standard (Locke & Latham, 1990; Wright & Brehm, 1989).

Inhibiting temptations, activating goals

Implicit counteractive control most clearly manifests itself in the inhibition of temptations and activation of goals (Fishbach et al., 2003). By activating constructs related to a goal in response to reminders of interfering temptations, individuals increase the relative mental availability of goal-consistent behaviors. Alternatively, by inhibiting temptation-related constructs in response to reminders of overriding goals, individuals decrease the relative mental availability of temptation-related behaviors. For example, in one study that used participants' stated goal-temptation pairs (e.g., class–sleep, save–spend), in a sequential priming paradigm, participants recognized goal-related words (class) more quickly after subliminal presentation of relevant temptation-related words (sleep) than after subliminal presentation of irrelevant temptation. Consistent with work on “goal shielding” (Shah, Friedman, & Kruglanski, 2002), we also found participants took longer to recognize temptation-related words (sleep) after subliminal presentation of relevant goals (class) than irrelevant goals. We take these patterns of activation to suggest that temptations (vs. control primes) activate goals, and goals (vs. control primes) inhibit temptations, although further investigation would be required to separate empirically amount of inhibition from lack of activation (see Sherman, et al., 2008).

These patterns of activation minimally tax working memory, in that we find similar patterns of goal activation and temptation inhibition under cognitive load, that is, when one's working memory is preoccupied. Non-conscious processes are often assumed to operate in an effortless fashion; however, recent research has shown two aspects of automaticity—consciousness and effort—are distinct, and certain mental processes can consume effort in the absence of conscious awareness (Dijksterhuis & Aarts, 2010; Marien, Custers, Hassin, & Aarts, 2012). Accordingly, , although self-control operations are largely unaware, the process of

exercising self-control could be taxing (Muraven & Baumeister, 2000; Vohs & Heatherton, 2000). In contrast with non-conscious-yet-taxing self-control, the implicit responses of inhibiting temptations and activating goals require limited working-memory resources (i.e., they sustain cognitive load; see also Fujita, 2011).

Other research suggests implicit temptation-inhibition and goal-activation are employed more frequently by successful self-regulators than by unsuccessful ones. For example, successful dieters exhibit these patterns, but dieters who frequently fail do not (Papies, Stroebe, & Aarts, 2008). Interestingly, because successful dieters respond to food temptations with activation of dieting goals, some research concluded fatty food causes weight loss (Kroese, Evers, & De Ridder, 2009). However, we assume the presence of temptation would activate self-control sufficient to cancel out the impact of temptation but not increase goal adherence beyond what one would expect in the absence of temptation. The presence of temptation will only facilitate goal pursuit if the positive impact of the self-control response is stronger than the negative, direct impact of the temptation.

In summary, self-control operations increase the motivational strength of the goal and decrease the motivational strength of the temptation, to promote goal adherence. The self-control response can take an explicit form, whenever individuals deliberately and consciously implement self-control. However, more often, these responses take an implicit form, whenever individuals engage in mental operations that resolve the self-control conflict outside of conscious awareness.

Concluding Remarks

Self-control is a two-stage process. To succeed at goal pursuit, individuals facing temptations must first identify the conflict between those temptations and their goals. Once they have identified the conflict, they will then have the opportunity to draw on self-control strategies

to promote goal pursuit. We have described the conditions for identifying a self-control conflict: conflict identification is more likely when a person considers multiple opportunities to act (width), expects to make consistent choices at each opportunity (consistency), finds her behavior easy to monitor (ease of monitoring), and finds her action meaningful for making self-inferences beyond their impact on goal attainment (diagnosticity).

We further portray the process of self-control as a process of asymmetric response to goals versus temptations, such that self-control operations either increase the motivational strength of goals or decrease that of temptations. As we have shown, in response to temptation, individuals engage in a variety of operations, some that involve conscious deliberation and others that are elicited spontaneously without awareness, deliberation, and, at times, with minimal attentional resources.

Our analysis of self-control behavior portrays a process that is different from other dual-process models of self-control (Bechara, Noel & Crone, 2006; Fudenberg & Levine, 2006; Hofmann, Friese, & Strack, 2009; Metcalfe & Mischel, 1999; Strack & Deutsch, 2004) in a key aspect: we assume a single process that can involve an explicit or implicit operation mode. Whereas some work portrayed the self-control conflict as involving a discrepancy between explicit and implicit modes, with the implicit mode more aligned with temptation and the explicit mode more aligned with goals, we suggest implicit processes are as likely as explicit processes to be in the service of goals. At times, implicit processes may even override an explicit tendency to give in to temptation. Thus neither mode is more closely aligned with high-level interests.

Importantly, our model does not refer to situations in which the presence of temptations only activates the self-control response and there is no impulse for temptation any more (e.g., when a cigarette loses its appeal for the smoker). Rather, the temptation in our model (and

studies) directly activates the desire and it is only through the simultaneous activation of self-control operations that the attraction is cancelled out and the temptation is inhibited. We thus assume opposite (simultaneous) effects of temptation, such that it activates desire and self-control responses at the same time. Studies then observe inhibition of temptation (rather than activation) whenever the net effect of self-control is stronger and it overrides the effect of desire or attraction.

As a final note, we suggest individuals do not face temptation defenseless and vulnerable. Rather, individuals facing temptation have an arsenal of operations designed to identify the problem and promote long-term interests in response to a self-control conflict.

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Table 1. Self-control strategies that create asymmetric change in motivational strength of goals versus temptations

	Goals	Temptations
Changing the choice situation	Self-imposed rewards	Self-imposed penalties
	Pre-commitment to pursue	Pre-commitment to forgo
	Approach	Avoidance
Changing the psychological meaning of choice options	Bolster	Devalue
	Hot and concrete construal	Cool and abstract construal
	Setting high expectations	Setting low expectations
	Activate	Inhibit

Figure 1: Two challenges of self-control: Identification and resolution

