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Understanding Self-Control as a Whole vs. Part Dynamic

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Abstract Although dual-process or divided-mind models of self-control dominate the literature, they suffer from empirical and conceptual challenges. We propose an alternative approach, suggesting that self-control can be characterized by a fragmented part versus integrated whole dynamic. Whereas responses to events derived from fragmented parts of the mind undermine self-control, responses to events derived from integrated wholes enhance self-control. We review empirical evidence from psychology and related disciplines that support this model. We, moreover, discuss the implications of this work for psychology, neuroscience, economics, and philosophy. In particular, we highlight how this model addresses many of the conceptual and empirical short-comings of divided-mind models. We suggest that understanding self-control as the interplay between fragmented parts versus integrated wholes, moreover, provides novel insights and testable new hypotheses.

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In social psychology, self-regulation (or self-governance) refers to the broad set of processes by which people adopt and manage various goals and standards for their thoughts, feelings, and behavior, and ensure that these goals and standards are met [1, 2]. Self-regulation involves numerous challenges, which include deciding which goals to pursue, planning how to pursue these goals, implementing these plans, protecting goals from competing concerns, and deciding whether to continue or abandon goals following successes and failures [3, 4]. In this paper, we examine a specific self-regulatory challenge, namely that of self-control. In a prototypical self-control conflict, people must choose between a smaller-immediate vs. larger-delayed reward (e.g., dieters trying to decide whether to eat a piece of cake vs. restrain to advance their goals of weight-loss). At their heart, self-control conflicts present dual-motive conflicts: people are motivated to attain both outcomes, but must choose one over the other. Self-control is generally defined as securing the more valued distal outcomes over smaller yet immediate ones [5–10].

Although some in the literature have equated self-control with self-regulation, it is important to appreciate these terms as distinct. Traditionally, self-regulation is defined as processes entailed in adopting, managing, and monitoring one's goals in thoughts, feelings, and behavior [1, 2, 4] Although self-control is a type of self-

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regulation challenge, not all self-regulation challenges entail self-control [6, 11]. Consider, for example, basketball players attempting to make free-throws. While this behavior requires skillful coordination and monitoring of thoughts, feelings, and behavior, it does not entail resolving a motivational conflict. That is, basketball players are not conflicted about what they want; they want to hit their free throws successfully and are not tempted to miss. The absence of motivational conflict makes this instance one about self-regulation, but not self-control. The current paper focuses specifically on self-control, rather than on self-regulation more broadly.

Self-control is associated with a number of important life outcomes, including academic achievement, as well as positive financial, physical, and mental health [8, 12–14]. As such, one of the central research questions attempts to understand why people so often struggle in their self-control efforts. In this chapter, we briefly review dual-process/dual-system approaches (often referred to as "divided-mind" models in philosophy), as well as some of the conceptual and empirical challenges to them. We present a broader, more integrative alternative perspective that describes self-control as reflecting a whole versus part dynamic, and review empirical support for this novel approach. We also discuss some of the psychological and philosophical implications of this model.

Divided-Mind Models

To explain why people struggle with self-control, traditional models of self-control in psychology, neuroscience, and philosophy tend to divide the mind into elements that compete for influence. Some, for example, have suggested that self-control might be understood as a competition between "automatic" impulses versus more "deliberative" reasoning [15–17]. Others have suggested that self-control can be understood as a conflict between "hot" emotions and "cool" cognitions [7, 8, 17, 18]. Philosophical analyses have often adopted similar "divided-mind" dynamics [19, 20]. Common to variants of the divided-mind model is some partitioning of the mind between Appetite on the one hand and Reason on the other. Although these dual-process/divided-mind models may be useful in describing some elements of self-control, they also present issues that the literature has not yet been able to resolve.

Empirical Challenges

Empirically, research does not fully support this partitioning of the mind. Consider, for example, the distinction between automatic impulses vs. deliberative reasoning. These models suggest that whereas encouraging "automatic" processing of information should impair self-control, prompting more careful reasoning processes should enhance it. These models are partially supported by empirical data suggesting that the presence of salient temptations can spontaneously and efficiently activate thoughts, feelings, and behavior that undermine self-control [6]. For example, mere exposure to incidental words related to palatable foods spontaneously activates positive hedonic thoughts among restrained eaters, distracting them from the focal task at hand [e.g., 21]. Moreover, burdening people's ability to engage in deliberation to over-ride such impulses can promote self-control failure [15, 22–25]. Research suggests, for example, that dieters eat more when presented with high-calorie foods while under high rather than low cognitive load [25]. Findings such as these have led many to conclude that automaticity is why so many people indulge in temptation, and that self-control can be addressed simply by "thinking more."

This conclusion, however, overlooks research suggesting that the advice to "think more" to enhance self-control may actually backfire. That is, research suggests that people will often engage in deliberative reasoning to justify acting on impulses [e.g., 26–27]. Weber and colleagues [27], for example, demonstrated that one reason why people fail at self-control is that they focus first on articulating reasons why they should indulge in temptation, only after which do they articulate reasons why they should not. Due to cognitive interference in memory retrieval, people's ability to engage in the latter is limited. Thus, even when asked to think carefully and deliberately, people are better able to generate reasons to indulge than not to indulge – prompting choices for smaller-immediate over larger-delayed rewards. Research also suggests that to the extent that people can justify their indulgences in order to reduce anticipated guilt, they will engage in temptation behavior [e.g., 28]. Thus, careful deliberation of one's choices does not always promote self-control as divided-mind models might suggest; deliberation can paradoxically undermine it.

The absence of reasoned deliberation, moreover, does not always prompt self-control failure in the

manner that divided-mind models might predict. In fact, research suggests that self-control may be enhanced to the extent that people rely on more efficient, automatic mechanisms. Research on implementation intentions, for example, suggests that people can automatize distal goal-promoting responses to proximal temptation by generating simple if-then plans [29]. For example, a dieter might commit to a plan such as "IF I see dessert, THEN I will refuse it." Research suggests that such plans create a cognitive link between the temptation and the goal-promoting behavior, which subsequently serves to initiate the desired behavior once the critical situation is encountered. Once linked to the situation by an if-then implementation intention, the initiation of the cued behavior no longer appears to require any deliberative effort or monitoring [30]. If-then implementation intentions are efficient in the sense that they effectively reduce processing demands in the moment of choice. By automatizing one's responses to critical cues, people no longer have to engage in the effortful deliberation that is so easily disrupted in the "heat-of-the-moment," thus increasing the likelihood of self-control success. Moreover, because a single if-then plan may be relevant for many similar situations, implementation intentions may be viewed as efficient in that they reduce the need to engage in effortful processing at each and every choice.

Research also suggests that those who are more successful at self-control develop what might be considered cognitive habits that advance their broader goals in the face of temptation. Fishbach and colleagues [31] demonstrated that those who are more successful at self-control evidence an asymmetric pattern of cognitive associations, whereby thinking about temptations facilitates thinking about one's over-riding goals, but thinking about one's goals does not reciprocally facilitate thinking about temptations. In other words, while thoughts about chocolate cake should activate weight-loss goals for a dieter, thinking of weight-loss should not reciprocally trigger thoughts about chocolate cake. Such asymmetric associations are functional for self-control because they bias thoughts in favor of one's broader goals rather than proximal temptations [21, 31]. These asymmetric associations, moreover, are evident even when people are under cognitive load, thus providing people with an efficient means of advancing their broader goals even in suboptimal processing conditions.

Just as research does not support a clean automatic vs. deliberative partitioning of the mind to explain self-control, empirical work also suggest issues with the distinction between "hot" emotions vs. "cool" cognitions. Although some research suggests that emotional reactions promote indulgence [e.g., 7, 32], other research suggests that some emotional reactions can paradoxically enhance self-control [e.g., 33–36]. The experience of emotions such as pride and guilt, for example, play critical roles in advancing rather than impeding self-control [34, 35]. Such findings are difficult to reconcile with models that equate emotional reactivity with poor self-control outcomes.

Much of the evidence presented above is based on behavioral research. One might suggest that the neuroscience of self-control may provide better evidence that there is a neural system that is associated with temptation impulses and another neural system that is associated with self-control. A recent comprehensive review of the neuroscience literature revealed that although it is possible to identify regions of the brain that are associated with self-control success vs. failure within a given task, there is little consistency across tasks [37]. Thus, the neuroscience literature does not provide the empirical support for divided-mind models that one might expect.

Conceptual Challenges

Beyond empirical issues, divided-mind models struggle to explain people's motivations more broadly. It is unclear from these models what people's true intentions are, and why one system or element of the mind should be viewed as consistent with this intention whereas the other is not. If dieters claim to want to lose weight, yet indulge at every opportunity, it is unclear whether they are weak-willed or just misguided about their true desires. It may be the case the proposed automatic or hot system undermines people's dieting intentions. But it may also be the case that the proposed deliberative or cool system prevents people from securing the hedonic pleasure that they truly want. Divided-mind models struggle to provide guidance as to which interpretation of this situation is more appropriate.

An Alternative Approach

Rather than model self-control as an issue of competition between elements of the mind, we propose instead that self-control reflects a coordination problem. We suggest that self-control is a problem of structure – the

integration of fragmented constituent elements around coherent wholes [38, 39]. Our model starts with the observation that goal pursuit requires the action of numerous sub-units or elements [1, 2, 40–41]. By sub-units or elements, we refer to any and all of the thoughts, feelings, and behavior that are necessary to engage in goal-directed action. Structure requires creating hierarchical structures that organize these disparate elements to cohere around unifying, superordinate goals. In any given system, the implementation of these superordinate goals requires action by subordinate units. To function, these units must work together. Structure reflects both the process and resulting state whereby these units work together to advance (rather than undermine) superordinate goals.

Building structure requires engaging in both bottom-up and top-down mechanisms. One needs to engage in bottom-up organization to determine what goals one should pursue – those goals that produce the most coherence among the more elemental units. Maintaining this structure, however, requires top-down mechanisms, whereby elements that deviate from coherence are brought back into line. When something is highly structured, its constituent elements are relationally organized, such that knowledge of one element allows one to logically deduce or predict the other elements. Thus, valuing weight-loss should be associated with negative rather than positive thoughts about cake, and positive rather than negative thoughts about fruit salad. Self-control failure, from this perspective, can be described as an instance in which there is insufficient structure, leading some elements to work at odds with the larger whole. Self-control requires the whole taking precedence over any individual part or parts.

As a conceptual metaphor, we suggest taking seriously the term "self-governance" by modeling the mind as a type of democratic government – namely, a senate. Individual "senators" represent the various constituent elements of the mind, including people's wants and needs, thoughts, and behavioral tendencies. In a well-functioning senate of the mind, each senator has the opportunity to be heard (unlike in an autocracy), but special interest groups do not dominate policy to the detriment of the whole. Policy is driven by consensus. Senators must work to build this consensus, finding ways to band together to promote common interests. Senators do not all need to agree on the desired outcomes, but it is necessary that they accept the decisions

of the senate and acknowledge that such decisions represent the senate's collective will. When the senate of the mind lacks control, senators operate independently of each other to advance their interests, even when such behavior entails defying policies that are set by the broader consensus. Individual senators, for example, might filibuster policies that enjoy broad support, or engage in actions at home that undermine the authority of the institution. The collective actions of such a government are chaotic and lurch from decision to decision, often leading to outcomes that are enjoyed by the single senator at the expense of the broader body.

Principled Structure in the Context of Self-Control

Proximal temptations are threats to the senate-of-the-mind as they activate narrow, short-term goals that are inconsistent with the broader, long-term goals of the collective – i.e., they threaten structure. Yet, what makes these temptations so appealing is that they appeal to the concerns of individual senators. Dieters, for example, may choose to lose weight not only to be healthier but perhaps also to be more physically attractive, to feel better about themselves, and to please their significant others. In committing to losing weight, the senators that represent each of these motivations have formed a voting bloc that forms the core of the broader consensus. The opportunity to eat cake, however, provides an opportunity for the hedonic eating senator to satisfy its idiosyncratic concerns. The dynamic of this individual senator attempting to exert influence against the objections of the broader collective forms the heart of the self-control dilemma. Although eating the cake would satisfy the hedonic eating senator, it undermines the collective will of the senate. Forgoing the cake requires subordinating the interests of the hedonic eating senator in favor of the broader consensus. Self-control conflicts can therefore be understood in whole vs. part terms – self-control entails the advancing of integrated wholes over fragmented parts.

Four implications of this structural definition of self-control as entailing a conflict between whole vs. part are worth noting for clarification. First, what constitutes a self-control conflict – i.e., what is a temptation – is subjective and determined by the idiosyncratic desires and motivations of the individual. A decadent piece of chocolate cake, for example, may not represent a temptation to a person unconcerned about losing weight and

healthful eating. That same cake, moreover, may still not represent a temptation to a committed dieter who does not like chocolate cake. Self-control conflicts require that the implications of the whole vs. part are motivationally relevant and connote conflicting responses to the individual. Note here that the same decadent chocolate cake may represent a self-control conflict to a hedonist, but in the opposite direction – their motivational consensus may be to consume the cake, but they may be tempted by a niggling desire to appease others by acting more concerned about their eating habits. Thus what is a self-control conflict for one person may not be for another.

Second, what constitutes a temptation may also be dynamic. Whether a given outcome is "important" or not depends on the degree to which it captures the consensus of broader whole, which in turn depends on the positions of the individual elements of the collective body. Individual senators, for example, may have initially joined a coalition to have some specific interest met. If this interest is met, they may no longer support the same causes as other members of the voting bloc. They may then join and strengthen other blocs, which may cause consensus to shift. As an example of this, consider a dieter who has refrained from food temptations for months and has successfully lost considerable weight. Imagine this individual is now confronted with a piece of his or her sister's wedding cake. Although a few isolated senators within the senate of the mind might advocate for restraint, the broader consensus might over-rule this objection to advance the goals of joining the family celebration and participating in tradition. Thus what was a temptation in one context (i.e., eating cake) may in another context become what constitutes controlled behavior. In this way, whether a given context presents a self-control conflict to a given individual requires nuanced consideration of the structure of his or her motivational concerns. We might add, however, that although shifts in consensus can happen, consensus tends to be more stable and less variable than any individual senator might be. Thus, although what represents a temptation might change as a function of context, these changes are not likely to be arbitrary and capricious.

Third, self-control is functional in the sense that it prevents the secondary concerns of the part from undermining the pursuit of the more essential concerns of the whole. Whether self-control is prescriptively normative, however, requires nuanced consideration.

Although research suggests that self-control is generally associated with positive outcomes [13, 14], some research suggests that self-control may at times be detrimental [42]. This may happen in part because people pursue goals that are ultimately unsatisfying or detrimental, leaving other needs and wants unfulfilled [43, 44]. Thus, although self-control promotes advancement of the concerns of the whole over individual parts, there is no guarantee that achieving those concerns will be as rewarding as one might have initially imagined or represent ends that others consider worth pursuing.

Finally, conflicts that do not feature this whole vs. part dynamic do not exemplify a lack of self-control. Consider, for example, students who must choose between two classes that are equally interesting and instrumental to their academic pursuits. Students may feel acutely conflicted about this decision, yet as it does not entail a part vs. whole dynamic (instead, it exemplifies a part vs. part dynamic), it is not an instance of self-control conflict. Although examples such as these may require other types of self-regulation to resolve [1, 2, 4], they are silent on the specific self-regulatory issue of self-control [6, 38].

In what follows, we explore the implications of this whole vs. part model for understanding what circumstances are likely to promote vs. undermine self-control. In particular, we focus on cognitive abstraction – or high-level construal – as a critical psychological variable that promotes a focus on integrated wholes vs. fragmented parts, and thus enhances self-control success. Abstraction supports structure – it entails integrating inputs and extracting emergent commonalities that may not be evident in any one signal. One benefit of abstraction is that it facilitates the recognition of emerging patterns from more elemental inputs, which may inform what goals should be pursued. In the simplest case, these elemental inputs converge around a single desired end-state and abstraction merely promotes the emergent pattern. In more complicated situations, as is the case when goals conflict, people may have to engage in abstraction to integrate the two competing concerns. Abstraction promotes the ability to compare proverbial "apples and oranges" – inputs that may have features that do not align for direct comparison – by facilitating comparisons on some common abstract dimension [e.g., 45]. Abstraction also promotes structure by promoting the ability to recognize discrepancies from coherent organization. By promoting a top-down view of the whole, abstraction facilitates detection

of any deviation from coherence. Given the role of abstraction in promoting structure, we should anticipate that any factor that promotes abstraction should promote self-control.

Construal Level Theory

Much of the recent psychological research examining the impact of cognitive abstraction on self-control has been inspired by construal level theory (CLT) [46, 47]. CLT draws on the premise that it is a subjective understanding of the world, rather than any of its objective features that influences decisions and behaviors [48]. For example, a football fan may perceive his team's play as a "hard hit" while a fan of the opposing team may construe the same maneuver as a "dirty play" [49]. CLT suggests that people's subjective construal of events differs not only as a function of group allegiances, but also as a function of the psychological distance from those events. Psychological distance refers to the removal of an event from direct experience. For example, an event that will occur next year is psychologically distant relative to one that will occur tomorrow. Beyond time, events can be psychologically distant on the basis of physical space (there vs. here), social connection (you vs. me, them vs. us), and hypotheticality (unlikely vs. likely, imagined vs. real). CLT suggests that psychologically distant events are more likely to be construed in terms of their more abstract, global, and essential (high-level) features whereas psychologically proximal events are more likely to be construed in terms of their more concrete, local, and idiosyncratic (low-level) features.

People can use their sensory and perceptual systems to construct detailed representations of events in direct experience. As events extend beyond the capacities of these systems, however, people must represent events based on knowledge in memory. One challenge that people must overcome is that detailed specifics about psychologically distant events are frequently unknown and are subject to change. CLT suggests that to address this challenge, people engage in high-level construal – a broader focus on the essential gist features common to all possible instantiations of those events. Consider, for example, a camping trip a year from now. It is impossible to know details like what the weather will be like and whether one should carry a poncho or not. One can assume, however, that all camping trips entail enjoying

time with friends and family while communing with nature. This broader focus on the core and essential features allows people to think about and evaluate events despite the lack of reliable details. As events become more psychologically near, however, these details become increasingly available and reliable. People respond by engaging in low-level construal – a narrower focus on the concrete and idiosyncratic features that render events unique. This allows people to tailor their behavior to the specifics of the particular event – such as carrying a poncho with the increased likelihood of rain during an upcoming camping trip. In essence, whereas high-level construal aids in "zooming out" to consider the proverbial "forest beyond," low-level construal aids in "zooming in" to immerse one's self among the individual trees.

CLT suggests that this tendency to construe psychologically distant versus near events in high-level versus low-level terms is over-practiced and is evident even when people have equivalent information about distant versus near events [47, 50]. For example, even when people know that it generally rains at the location where they have planned their camping trip, they will still tend construe this trip as "communing with nature" when it a year away and as "hiking in the rain" when it is tomorrow. Critically, CLT proposes that this change in construal may lead to changes in people's evaluations, judgments, and decisions. To illustrate, let us assume that one evaluates communing with nature positively but hiking in the rain negatively. When the camping trip is a year away and correspondingly construed in high-level terms ("communing with nature"), the individual is likely to be positively inclined to go. When the camping trip is tomorrow and correspondingly construed in low-level terms ("hiking in the rain"), the individual is likely to be more negatively inclined to go. In this way, understanding how people construe events may help explain why people's preferences appear to shift as a function of time and other dimensions of psychological distance, even when information about these events are held constant.

Extensive research supports CLT's proposition that psychologically distant (vs. near) events are construed in high-level (vs. low-level) terms [46, 47]. For instance, people categorize objects associated with psychologically distant vs. near events in fewer, broader groupings, suggesting a greater focus on broader wholes rather than specific parts [51–54]. People are also more likely to interpret behaviors ("climbing a tree") in terms of more superordinate "why" aspects ("getting a better view")

rather than more subordinate "how" aspects ("moving from branch to branch;" [52, 53, 55]. Importantly, these changes in construal level impact people's preferences and decisions. For example, when events are temporally distant and thus construed more broadly in high-level "why" terms, people prefer options that are more desirable yet less feasible [55]. When those same events are temporally proximal and thus construed in more narrowly in low-level "how" terms, people prefer options that are less desirable yet more feasible.

As it is relevant to our later discussion, research indicates that it is possible to induce high vs. low-level construal more directly without having to manipulate distance [56]. One such direct experimental manipulation of construal level presents research participants with a behavior (e.g. getting good grades) and asks them either why (e.g. to get a good job after college) or how (e.g. by studying in the library) they would engage in that behavior. This task reliably induces more high-level "mindsets" in participants who complete the "why" version of the task than the "how" version of the task, which then carry over into subsequent, unrelated tasks [57, 58]. In other words, participants start off by thinking broadly (vs. narrowly) about one particular goal (e.g. getting good grades) and continue thinking broadly (vs. narrowly) about other unrelated events.

Construal Level and Self-Control

Research indicates that self-control decisions are particularly sensitive to time [5, 9, 10]. That is, when decisions are to be implemented in the distant future, people reliably prefer larger yet distal rewards over smaller yet more immediate outcomes. When the same choice options are to be implemented in the near future, however, people evidence preference reversals, preferring smaller-immediate over larger-distal outcomes. CLT provides a framework for understanding why these preference reversals as a function of time occur. When temptations are psychologically distant, the enhanced focus on broader wholes engendered by high-level construal leads people to make decisions on the basis of their broader implications. By contrast, when temptations are psychologically near, the enhanced focus on idiosyncratic parts engendered by low-level construal leads people to make decisions on the basis of narrower, situation-specific considerations. Stated differently, in

the senate-of-the-mind, high-level relative to low-level construal engages the abstraction processes that promote structure – the kind of processing that facilitates the will of the consensus rather than empowering individual senators. A thorough body of research literature documents the beneficial impact of high-level construal for self-control.

Selective Review of Empirical Evidence

Initial evidence that construal level impacts self-control comes from research on intertemporal preferences and choice. Intertemporal choice tasks involve choosing between a smaller monetary amount available in the near future (e.g. $30 tomorrow) versus a larger monetary amount available in the more distant future (e.g. $40 in three months). Of primary concern in intertemporal choice research is people's discount rates – the amount an individual would require in order to choose the larger, later amount over the smaller, sooner amount. Steeper discount rates are indicative of poor self-control because they involve forgoing a more valued, but delayed outcome in favor of a less valued, but more instantaneous outcome. High-level construal has been shown to reduce discount rates. In an early study, for example, Fujita and colleagues [58] manipulated construal level by manipulating mindsets using the why vs. how task described earlier. Specifically, participants in the high (versus low) level condition were asked to think about why (versus how) they would engage in getting good grades. These high vs. low-level construal mindsets carried over to the subsequent discounting task in which participants indicated how much more they would pay to receive a consumer good now versus 6 months from now. Those induced to engage in high-level (vs. low-level) construal showed smaller differences in the amount they would pay now vs. later, indicative of reduced discount rates and enhanced self-control. Studies using alternative methods have revealed similar results [45, 59, 60].

Research suggests that construal level may also impact self-control beyond choice tasks that explicitly entail monetary outcomes over time. In one experiment, for example, Fujita & Han [61] recruited female undergraduate students – individuals commonly concerned about losing weight. Participants were first induced to construe events in high-level vs. low-level terms by asking them to generate superordinate categories vs.

exemplars for a series of forty commonplace objects ("vehicle" vs. "sedan" for the object "car"). Research suggests that this task successfully induces the high-level vs. low-level construal mindsets that carry over to subsequent unrelated tasks [58]. Participants then indicated whether they would prefer an apple or a candy bar as a snack. Those in the high-level construal condition were more likely to choose a diet-consistent apple over the diet-undermining candy bar, suggesting enhanced self-control. Similar results have been reported by Sweeney and Freitas [62], who found that an intervention based on manipulating high-level vs. low-level construal increased physical activity over a one-week period among those looking to exercise more frequently. Research by Chiou and colleagues [63], moreover, suggests that high-level vs. low-level construal may reduce smoking behavior among smokers.

Additional evidence of the role of high-level construal in self-control comes from research examining ego depletion – an apparent diminished capacity to exert self-control following a previous act of self-control [64, c.f., 38]. In a classic demonstration of ego depletion [65], researchers first taxed dieters' self-control by having them resist snack foods that were placed in a spatially near versus distant location, with the logic that spatially proximal foods are more tempting and therefore require greater self-control to resist than spatially distant foods. Dieters who had to resist spatially near versus distant snacks ate more ice cream in a subsequent "taste test." Though such findings are robust in the literature [66], research also shows that high-level construal can mitigate these ego depletion effects. For example, when a construal-level manipulation is interposed between the two self-control tasks, those induced to low-level construal show the typical ego depletion effect while those induced to high-level construal do not [67–69].

Change in Meaning

CLT emphasizes the importance of people's subjective understanding – or construal – of events in judgment, decision-making, and behavior. Thus, high-level vs. low-level construal presumably impacts self-control by changing the meaning of an event. Whereas the broader perspective of the collective will of the senate-of-the-mind might lead to one conclusion, the narrower perspective of an individual senator might lead to an entirely different conclusion. From the narrow perspective

of one's growling stomach, a donut is a tasty and delicious treat that conveys positive connotations. Yet, from the perspective of dieters' broader health and well-being concerns, the same donut is a fattening over-indulgence, which conveys more negative connotations. Whereas the former may lead dieters to self-control failure, the latter may lead to self-control success. In this way, changes in the meaning of the event occur as a function of construal level and influence self-control decisions and behavior.

Evidence for this change in meaning explanation comes from recent work by Carnevale and colleagues [70]. When dieters were induced to construe temptations in high-level vs. low-level terms, they were faster to categorize foods on the basis of health vs. taste, respectively. In other words, dieters showed a readiness to interpret and think about food in broader health rather than narrower taste concerns when engaged in high-level construal. This sensitivity to the health rather than taste dimension of food appears to account for dieters' more negative evaluations of food when they are engaged in high-level relative to low-level construal [61, 70]. This supports the assertion that people's preferences in self-control dilemmas change depending on whether one adopts the perspective of the senate-of-the-mind as a whole or the perspective of its individual constituent senators.

Re-Conceptualizing "Divided-Mind" Dynamics of Self-Control

We argue that a construal level approach to self-control can augment the divided mind approach by presenting a model that is integrative and broader. Considering these models in tandem resolves some of the challenges evoked by the divided mind model on its own, such as determining a person's true intentions a priori as well as determining the circumstances under which automatic and emotional processing may promote rather than undermine self-control.

First, the whole vs. part model addresses some of the conceptual challenges that part vs. part divided-mind models struggle to overcome. For example, rather than propose that one part of the mind speaks for the "true" intention while the other does not, we instead define self-control structurally by the asymmetric whole vs. part dynamic. This structural asymmetry emphasizes the whole vs. the part dynamic rather than part vs. part

dynamic and asymmetrically ascribes intentions to the whole. Rather than arbitrarily labeling one element as reflecting people's true intentions, the present model instead provides a defensible criterion with which to determine what people really want.

Second, the whole vs. part model that we advance makes no assumptions about what elements of the mind are "good" vs. "bad" for self-control. As such, many of the empirical challenges leveled at divided-mind theories can be reconciled by the present model. Whether some process or element is automatic vs. deliberative or hot vs. cool is irrelevant; what matters instead is to what degree that element supports and sustains the whole. Indeed, one advantage of the present model over traditional dual-process models is its ability to predict and explain when automatic vs. deliberative processes will impair or enhance self-control as well as the circumstances under which emotions vs. cognitions hinder or promote self-control.

Consider, for example, research on the effect of construal level on people's experience of temptation impulses. Fujita & Han [61] induced participants who were concerned about their weight to engage in high-level vs. low-level construal. They then had participants complete a version of the apples vs. candy bars Implicit Association Test [IAT; 71], a computerized reaction time task that assesses the ease with which people associate apples and candy bars with positivity and negativity. The experience of temptation impulses is indicated by a greater ease in associating temptations with positivity rather than negativity [23]. Results indicated that those induced to high-level relative to low-level were less likely to evidence the spontaneous temptation impulses that undermine self-control.

Research by Fujita & Sasota [73] suggests that engaging in high-level relative to low-level can also potentiate those efficient processes that enhance self-control. Recall that research shows that self-control is enhanced by a cognitive habit whereby thoughts about temptations facilitate thoughts about over-riding goals, yet thoughts about over-riding goals does not reciprocally facilitate thoughts about temptations [31]. Fujita & Sasota [72] demonstrated that "healthy" cognitive habits like these asymmetric temptation-goal associations are more evident when people are engaged in high-level rather than low-level construal. Thus, being guided by the whole rather than the parts determines not only when people experience of temptation impulses, but also

when they initiate those efficient cognitive mechanisms that promote self-control.

Just as the wholes vs. part model might explain when automatic vs. deliberative processes promote vs. impair self-control, it may also help explain when strong emotional reactions may have beneficial or detrimental effects. Rather than suggest that one side of the self-control dilemma is emotional whereas the other is not, we might instead suggest that emotions can mark both the whole and the part. Just as an individual senator can react emotionally to a situation, so too can the broader collective. The actual quality of the emotion experienced may differ, however, as a function of level of abstraction. Some emotions may require an appreciation of the broader, more abstract implications of an event, such as is the case with pride vs. joy. Whereas joy reflects a positive reaction to the immediate situation, pride reflects the positive affect that results from embedding the present into a broader context [73, 74]. Given this distinction, we might suggest that those emotions associated with a broader, more expansive perspective (i.e., high-level construal) should enhance self-control, whereas those associated with a narrower, more idiosyncratic perspective (i.e., low-level construal) should undermine it. Consistent with this proposal, research suggests that emotions such as pride promote self-control by enhancing the tendency to construe events in high-level rather than low-level terms [35, 73, 74]. In this way, the whole vs. part approach may resolve apparent discrepancies in the empirical literature and provide greater conceptual clarity about the role of emotion in self-control. To the extent that people's "hot" reactions are derived from the fragmented part rather than the integrated whole of the mind, describing self-control as a conflict between emotions and cognitions is consistent with our perspective. However, when people's "hot" reactions are derived from the integrated whole, we should expect emotions to enhance rather than undermine self-control. Similarly, when cognitions center around the idiosyncratic rewards of fragmented parts, such cognitions are likely to undermine rather than enhance self-control.

Prospective Self-Control

In addition to resolving some of the challenges presented by divided-mind models, a construal level approach to self-control provides an explanation for alternate forms of self-control, such as proactive rather than

reactive self-control, that many traditional divided-mind models cannot explain. Research on prospective self-control exemplifies these sorts of proactive strategies. Prospective self-control refers to the broad collection of processes and strategies whereby people protect their broader goals from anticipated temptation [6, 11]. Consider, for example, the strategies that dieters might use to promote their weight-loss efforts. They could engage in various processes to "cool" or suppress the thoughts and feelings that they experience when they step into a bakery, directing their attention instead to the less calorie-dense options that are available. Alternatively, they could just avoid going to the bakery in the first place. Whereas the former is a reactive strategy – one that is initiated in response to temptation impulse, the latter is a proactive strategy – one that is initiated in anticipation of temptation impulses. Research highlights the critical role these proactive strategies play in self-control success. For example, children as young as 5 years old know that occluding temptations, rather than exposure, enhances self-control [75]. Many adults deposit money into "Christmas club accounts" – savings accounts that pay no interest but charge heavy fees for early withdrawals. These accounts confer no financial advantages, but effectively deter impulsive withdrawal of the deposited funds [10]. Of note, research even suggests that proactive, rather than reactive, self-control may be what distinguishes those who are ultimately the most vs. least successful at achieving their broader, long-term goals [76]. For example, those who are high in trait self-control are more likely to strategically select environments that are free from temptations [77] and are less vulnerable to ego depletion effects [78]. Thus, proactive forms of self-control are important "tools" by which people protect their broader goals from the threat of temptations.

It is difficult for many divided-mind models to explain such phenomena, particularly those in psychology that emphasize the interplay between automatic vs. deliberative processes. In these models, self-control is the process of over-riding impulses that have been activated by temptations in the environment through effortful, consciously initiated thought – i.e., a reactive process initiated after the detection of problematic thoughts, feelings, and behavior. Many of these models lack the conceptual language for explaining what people do when they anticipate a temptation in advance of any experience of impulses. Modeling self-control as a conflict between integrated wholes vs. fragmented parts

allows one to incorporate both reactive and proactive forms of self-control into the same conceptual framework. Returning to our metaphor of the mind as a senate, prospective self-control is akin to the majority structuring debates to limit the influence of the minority. Rather than allow individual senators to disrupt any proceedings, the majority can work to anticipate their actions and organize in advance, rendering voting outcomes a formality. One might expect that empowering the whole rather than the parts should facilitate these proactive efforts.

Indeed, research supports the proposition that high-level relative to low-level construal promotes prospective self-control. In one study, Fujita & Roberts [79] manipulated construal level and presented participants with an opportunity to receive feedback about their cognitive skills. This feedback was described as highly diagnostic and useful, motivating participants to pursue it. The cognitive assessment and feedback, however, were inconveniently scheduled for the middle of the night. Participants therefore anticipated a self-control conflict between the long-term benefits of receiving the feedback and the short-term costs associated with the inconvenient scheduling procedures [52, 80]. Participants were asked to report how much of a monetary penalty they would be willing to pay if they did not attend their scheduled session as a measure of prospective self-control. Those in the high-level construal condition, as compared to those in the low-level construal condition, imposed larger cancellation fees on themselves. These findings are consistent with the notion that empowering the whole over individual parts promotes prospective self-control.

Acrimonious Conflict Vs. Win-Win Agreements

Extending the metaphor of the senate-of-the-mind further, we might note that not all interactions between collective legislative bodies and their constituent representatives are marked by acrimony and distrust. Functioning representative governments encourage representatives to negotiate and look for win-win agreements that allow everyone to get what they want to the extent that it is possible. Just as interpersonal negotiations may be marked by antipathy and the belief that one side must lose for the other to win, or may be marked by conciliation and a willingness to cede less important points to acquire important points (a process called

"logrolling"), an individual may resolve intrapersonal motivational conflicts with or without overt strife.

Analogously, as interpersonal trust between parties impacts how conflicts are resolved interpersonally, it may be trust between the various factions in the senate of one's mind that determines how self-control conflicts are resolved. Those more successful at self-control may be more effective in building broader coalitions among the various factions in the senate-of-the-mind, finding ways to appease those in the minority. For example, successful dieters may strategically choose to indulge every now and then as peace offerings to the less powerful coalitions within the mind. In this way, restraint and indulgence may both play important roles in successful self-control over time [9].

Germane to this point is research in interpersonal negotiation that indicates that high-level construal promotes logrolling [81, 82]. The structured perspective that high-level construal creates helps to clarify which issues are high-priority and which issues are relatively low-priority. This allows negotiators to recognize more effectively areas where they should compromise from areas where they should hold firm. Lacking this perspective, as is often the case when engaged in low-level construal, each issue considered has the ability to derail the entire negotiation, no matter how minor in importance or tangential to the overall desired outcome. Construal level may affect intra-personal negotiation in a similar fashion as it affects interpersonal negotiation. Metaphorically, the perspective of the whole rather than of the part may help the senators in the senate-of-the-mind to logroll and build trust by finding win-win solutions that appeal to all vested parties. Stated in more formal terms, high-level relative to low-level construal may lead individuals to search for solutions to choice problems that satisfy each motivation in some way. To the extent that they are successful in this endeavor, every motivation may get to have its "day in the sun."

We highlight two important implications of modeling self-control decision-making as a negotiation process. First, it may be difficult to determine whether someone is "good" or "bad" at self-control by observing only one decision or behavior. Successful self-control may not be the complete abstinence from temptation, but rather knowing when to restrain vs. indulge [9]. Admittedly, balancing restraint and indulgence is challenging – it is far too easy to justify a given indulgence by promising restraint in the future. Nevertheless, to the degree that one's senate-of-the-mind is marked by trust and binding

agreements, indulging in an once-in-a-lifetime meal might be a concession that a dieter's broader senate might be willing to make to ensure continued peace in the legislative body. To the extent that such logrolling is effective in keeping people on-course with their goals, such decision cannot be viewed as self-control "failures."

Second, although self-control is often described in conflictual terms, with one's angels and demons battling for influence, successful self-control may at times paradoxically be marked by the absence of such conflict. That is, to the degree that the constituent senators in the senate-of-the-mind all trust one another and are able to find effective win-win solutions, they may be more willing to submit to the collective consensus, knowing that their needs will eventually be met. By contrast, if they do not trust one another, individual senators may plot to undermine the will of the consensus, usurping power at every opportunity and sowing chaos. In those situations in which win-win solutions are possible, those who are particularly effective at self-control may be those who have more orderly, trusting senates-of-the-mind. Although conflicts may arise from structural disagreements between the whole and part, the degree to which one can resolve these efficiently and effectively may minimize the conflict one experiences when faced with temptation. We might add, however, that there may be many types of self-control conflicts that are not amenable to allowing all of one's various motivations to be expressed, such as being faithful to one's spouse vs. infidelity or maintaining a vegan diet. However, modeling self-control as a negotiation process nevertheless questions whether the experience of conflict as defining of self-control.

Self-Knowledge and Perceived Agency

The whole vs. part model that we advance provides unique insight into people's self-understanding and perceptions of agency when confronted with temptations. Rather than reflect a conflict between two selves as many divided-mind models suggest, the whole vs. part approach suggests instead that self-control failures might result from an incomplete understanding of what people want. To the extent that people are engaged in low-level construal, they may be aware of only the specific, narrow concerns of the single senator in the senate-of-the-mind that happens to speak the loudest.

What low-level construal does not afford is a vote of the collective body of the senate. In many ways, then, when people are engaged in low-level vs. high-level construal, less of "me" is involved in the decision-making process [83]. By contrast, engaging in high-level construal may allow people to better access the consensus will of the senate-of-the-mind, providing a broader survey of what the various senators want. When engaged in high-level construal, then, more of "me" is represented in the decision-making process.

This may have important implications for the perception of agency in self-control. When engaged in low-level construal, actions are dictated by a single senator. As a result, behavior is more random and chaotic, increasing the likelihood of self-control failure. In looking back at those decisions, people may have trouble understanding them, particularly when distance from the temptation evokes more high-level construal. This in turn may lead to perceptions that "it was not me" who made the decisions. By contrast, when engaged in high-level construal, actions are dictated by the consensus will of the senate. This should not only increase the likelihood of self-control success, but should also promote a sense that more of "me" was involved in the decision-making process. This in turn may promote perceptions of agency – that I was responsible for the decisions that I made and that they reflect my true motivations. By requiring high-level rather than low-level construal, then, self-control may promote a clearer more coherent sense of self as well as promote perceptions of agency. Both are associated with enhanced psychological functioning and well-being [84–86]. Thus, in addition to the direct benefits that self-control may have for securing long-term outcomes, our approach uniquely suggests that it may also provide indirect benefits related to human flourishing.

Summary

In this article, we have reviewed work highlighting the roles of abstraction and subjective construal in self-control. In the senate-of-the-mind, more abstract, high-level construal may promote more effective governance by promoting the will of the consensus. By contrast, more concrete, low-level construal may promote less effective governance by empowering independent factions unconstrained by the majority. We suggest that this approach augments but does not replace divided-mind

models of self-control that dominate the literature. We have reviewed empirical evidence for the assertion that high-level relative to low-level construal promotes self-control, and have briefly discussed psychological and philosophical implications. We encourage and look forward to future multi-disciplinary dialogue and research that explores these implications.

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