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Addiction as a Disorder of Self-Control

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Although impairment of self-control is often assumed to be a defining feature of addiction, many addicts nonetheless display what appears to be a considerable amount of control over their addictive behavior. Not only do they act intentionally and frequently in a deliberate manner, there is evidence suggesting that they are responsive to many ordinary incentives and counter-incentives (Heyman 2009; Pickard 2015). Given the great variety of addicts and their ability to control their drug use, how can impairment of self-control still be taken as *a defining feature* of addiction?

Clearly, if we want to hold on to this idea (as I think we should), a lot depends on how we understand the nature of self-control. In this chapter, I shall argue, first, that a difficulty with some standard views of self-control in the philosophical literature is that they see the impairment of addicts' self-control only in terms of the role addiction plays in causing a certain kind of self-control conflict, either between the addict's drug-oriented behavior and her all things considered judgment, or between this behavior and her long-term values. But addicts, problematically, also display impaired self-control in the absence of any such conflicts. Second, there is plenty of empirical evidence suggesting that diminished attentional and impulse control is an important part of the explanation of addictive behavior. I argue that while such diminished control may produce self-control conflicts of the kind assumed in the philosophical literature, it need not do so. Still, it provides evidence that addicts have impaired self-control. By creating

an inflexible and stimulus-bound practical perspective, diminished attention and impulse control mean that addicts' decision-making gets shaped by their addiction rather than by their reasons. While this makes it very difficult for addicts to revise or abandon their drug-oriented behavioral pattern given good and sufficient reasons to do so, it does not rule out the possibility of their often exercising substantial control over their drug-oriented actions.

1. Judgment-Based vs. Value-Based Self-Control

Self-controlled persons are governed by motives that are, in some sense, constitutive of their "self." In philosophical discussions of self-control, two kinds of motives tend to be highlighted. First, there are the motives that are expressed by the agent's "all things considered" or "better" judgments. Second, there are the motives that are expressed by what the agent "genuinely values." Since an agent's all things considered judgement at a particular time need not reflect what she genuinely values, these motives are not necessarily the same. It is possible, therefore, to distinguish between a judgment-based and a value-based form of self-control.

Consider first judgment-based self-control. Alfred Mele has argued that self-control is the contrary of what Aristotle called *akrasia* (incontinence, weakness of will), "a trait of character exhibited in uncompelled, intentional behavior that goes against the agent's best or better judgment" (Mele 2002: 531). A best or better judgment is "a judgment to the effect that, on the whole, it would be best to A, or (instead) better to A than to B" (Mele 2010: 392). As Mele also points out, "Someone's *making a judgment* […] is an event," that is "at least suggestive of a belief arrived at on the basis of conscious deliberation" (Mele 2009: 6,7). According to a judgment-based view, then, self-control is a trait of character exhibited in behavior that conforms with one's best or better judgment in the face of temptation to act to the contrary.

If self-control is the contrary of akrasia, it may seem that failures of self-control cannot occur in the absence of akrasia. That is, a person cannot fail to exercise self-control if he acts in conformity with his all things considered, or better judgment. However, this view is problematic. Consider the following example. An alcoholic wishing to stay abstinent may now judge that, all things considered, it would be better to stay home and watch television than go to the pub and have a drink with a friend. But as evening draws near, the temptation to drink increases, making him change his mind about what would be the better course of action – by giving too much weight to certain considerations that appear to provide reasons to meet with his friend, for example – and then revising his all things considered judgment accordingly. Is this a failure of self-control? Not if self-control is the contrary of akrasia. The alcoholic (unlike the *akrates*) does not act *against* his all things considered judgment when he chooses to meet up with his friend. Nevertheless, he plausibly exhibits a lack of self-control. This is because he revises his all things considered judgment *unreasonably*: he revises it, not because of the considerations that give him reasons to join his friend, but because he, at the time of making the choice, has a strong desire to drink – precisely the desire his judgment ruled out as outweighed by his better reasons.

In attempting to diagnose the difficulty here, it might be pointed out that the "self" of self-control must involve more than what is contained in the agent's all things considered judgment at the time of choice. While a self needs, for example, a certain stability over time – a self is not typically understood as the sort of thing that frequently changes – an agent's all things considered judgment may very well change from one moment to the next. Oscillations in judgment, or "judgment shifts" as they are called, typically occur when influences external to the self (such as impulses, desires, or strong feelings) interfere with or disrupt an agent's deliberative process at the time of choice. An alternative approach, therefore, one that aims to preserve the stability of the self, might be to see this notion as essentially involving *values* the

agent herself has endorsed or endowed with normative force (Kennett 2013). Although values, of course, also may change, they seem inherently to have more stability than ordinary judgments. As Gary Watson suggests, they express what the agent "in a cool and non-deceptive moment – articulates as definitive of the good, fulfilling and defensible life" (Watson 1982: 105). Clearly, an agent's all things considered judgment at one particular moment need not express such values. According to value-based self-control, then, self-controlled persons govern themselves in accordance with what they genuinely value even in the face of strong competing motivation. Since it is common to see an agent's values as expressed by the stable set of attitudes she has relative to future behavior, value-based self-control is *diachronic*: it enables the agent to govern her actions across time, to maintain coherence between her long-term attitudes and her actions (Levy 2006). The alcoholic in the example might be said, then, to exhibit a lack of value-based self-control.

Judgment-based and value-based conceptions of self-control imply different views of the fault involved in *failures* of self-control. Suppose addicts typically lack judgment-based self-control. That means they typically take drugs while judging, at the same time, that all things considered, it would be better to abstain. Since they take drugs knowingly and in full awareness of choosing an inferior option, their fault cannot be cognitive. It must be *volitional*. It must consist in a failure to be motivated to do what they judge best. But this might not be the correct view of the failure of self-control in addiction. Suppose instead that addicts typically lack value-based self-control. As the opportunity for consumption presents itself, they typically succumb to a temptation to rationalize their reluctance to abstain by changing their mind about what would be best. At that moment, they always judge it best, all things considered, to take drugs. This would suggest that their fault is *cognitive*. It consists in a failure to judge, at the time of action, that the option that represents their genuine values is the best option.

So, is the failure of self-control in addiction typically cognitive or volitional? Let me start by considering a recent philosophical argument for the view that it is cognitive.

2. Levy on the Impairment of Self-Control in Addiction

The most important evidence of a self-control problem in addiction stems from addicts' own reports of failed attempts to exercise restraint. This restraint typically involves effort and a conscious act of will. Based on the further observation that these failures tend to have tremendous negative consequences for the addicts' themselves, it has been common to infer that addictive desires must be so powerful as to be literally irresistible. Clearly, this means, if correct, that addicts' impairment of self-control must involve a volitional fault, i.e., addicts are perfectly aware of the best course of action – to decline the offer of a drink, to throw away the packet of cigarettes, to abstain from heroin – but they are just unable to motivate or incentivize themselves to act accordingly. There are, however, serious problems with this inference. As several studies have shown, financial concerns, fear of arrest, values regarding parenthood, and many other factors increasing the cost of drug-taking often persuade addicts to desist (Heyman 2009; Pickard 2015). In fact, addiction often appears to involve a choice process, a conscious weighing up of the costs and benefits of different options. This is evidence that addictive desires need not be irresistible.

For some authors, self-control failure in addiction is therefore a cognitive rather than a volitional failure, involving the addict's loss of control over the valuational contents of her all things considered judgments rather than over her motivation to act in line with these judgments (Levy 2014). Based on empirical evidence that addicts tend to be "hyperbolic discounters" (Ainslie 2001) – they tend to discount the utility of future rewards by a proportion that declines as the length of the delay increases – Neil Levy has suggested that addiction creates strong temptations that induce regular and uncontrollable judgment shifts (Levy 2006). Such judgment

shifts undermine self-control, he argues, because the addict fails to integrate her life sufficiently to pursue what she genuinely values. In other words, addiction impairs *value-based* self-control. Recently, Levy has supported this account with an argument purporting to show that the neural adaptations characteristic of addiction in fact provide *a mechanism* for such judgment shifts (Levy 2014; see also chapter x, this volume). While addictive drugs are widely known to increase dopamine by stimulating its release or decreasing its reuptake in the nucleus accumbens, the information carried by increased levels of dopamine is open to different interpretations. Of particular relevance here is a series of well-known experiments by Wolfram Schultz and colleagues (1992), measuring firing activity of putative midbrain dopamine neurons in monkeys before they learned to associate a light cue with a reward. They found that the dopamine signal went up when the reward was delivered, but once the association between cue and reward was learned, the dopamine signal went up when the light appeared but remained flat when the reward was delivered. Schultz and colleagues took this to show that a momentary increase in dopamine neuron firing activity indicates that the world contains more rewards than expected, or that an unexpected reward is available.

If one of the functions of midbrain dopamine neurons is to help the organism update its idea of the world's abundance of rewards, as Schultz and colleagues suggest, addiction, Levy claims, could plausibly be seen as a pathology of reward-based learning because drugs, unlike natural rewards, drive up the dopamine signal by direct chemical action on the brain. Drugs are therefore likely to generate a large prediction error: every time they are consumed (i.e., the reward is delivered) the addict's reward system tells her that the world contains more rewards than expected, rather than being exactly as expected (which would have been the normal learning response). Based on evidence linking dysfunctions of the dopamine system with pathologies of belief-formation, Levy argues that the reward system's treatment of the drug as something of ever-increasing value puts pressure on addicts to adopt and endorse an available

causal model of the world that minimizes prediction error. Since the most accessible model is one in which drug use is judged better than abstention, addicts are likely to adopt and endorse this model, he claims. So when dopamine neuron firing activity increases in the presence of drugs or cues predicting drug availability, addicts will shift from judging abstention, all things considered, better than use to judging use as better, all things considered, than abstention. However, once the drug is consumed and the dopamine neuron firing activity has decreased, a rival model of the world will be triggered, where abstention is judged better than use. The result is oscillation in all things considered judgments.

Now, it is well documented that addicts generally experience difficulties in attempting to control future behavior and pursue long-term goals of abstinence. Levy is probably correct that judgment shifts occur more frequently in addicts than in non-addicts. In the next section, however, I shall argue that there still are good reasons to resist the claim that loss of control over all things considered judgment is the only, or even the typical, form the impairment of self-control takes in addiction.

3. Cravings and Failure of Impulse Control

If one of the functions of midbrain dopamine neurons is indeed error prediction, these error predictions most likely lie outside of consciousness (Schroeder 2011). This means that a lot hinges on Levy's assumption that the error is passed on to higher levels of the processing hierarchy. According to Levy, minimizing the prediction error creates pressure on these higher levels to adopt and endorse the model that constitutes the judgment that drug use is, all things considered, best. It is "the model," Levy writes, "of the drug's place in the world, which the person endorsed in the earlier stages of drug use when drug use was controlled and chosen for its rewards" (Levy 2014: 348). It will be adopted and endorsed because it is the "most easily accessible" and most "easily available for recall" (ibid., 348). This claim raises difficult

questions about what makes a model "easily accessible." Clearly, addicts differ immensely in terms of psychological and social circumstances, personal resources, severity of addiction and so on. Is *the same* model of the world equally "accessible" to *all* addicts in spite of these differences? Levy could be right that the model that drug use is, all things considered, best might be the "most easily accessible" model to a young cocaine addict trying to quit for the first time. But why assume this model is equally accessible to the middle-aged nicotine addict who has desperately and unsuccessfully struggled with addiction for many years? She might not get any real pleasure out of smoking anymore. She might even wonder why she ever started given how little she now values smoking. Will the model of smoking's place in the world that she endorsed in the early stages of her addiction (possibly decades ago!) for its rewards be the one "most easily accessible" every time some smoke-related cue boosts her dopamine levels and she feels a craving to smoke? I confess I find this hard to believe.

The main problem with the judgment shift view, however, is that it ignores the role of *cravings* in the development and maintenance of addiction. It is widely agreed that dopaminergic activity in addicts is linked to experiences of drug cravings. A natural place to start, then, in interpreting the information carried by this activity, would be to focus on the role cravings play in deliberation and action guidance. Cravings appear to belong to the same category of simple motivation as "impulses" and "urges." Such motivations differ in important ways from more complex forms of cognitive motivation involving beliefs, desires, or judgments. For example, they can be very hard to separate from the actions they produce – such as the impulse to scratch produced by an itch, or the impulse to laugh in response to a joke can be hard to separate from the experience of scratching or laughing. Usually, it is when an impulse for some reason is not immediately translated into action that it comes into conscious awareness and is experienced as an "urge" or a "craving" (West 2006).

Now, if craving is a form of impulse or urge, "yielding to temptation" might mean something quite different when it is caused by a craving than by a more complex form of cognitive motivation. Consider cases where loss of control is mediated by judgment shifts. Here, an agent yields to temptation by failing to restrain herself from re-evaluating her options when the tempting object becomes available. Plausibly, one explanation of what drives this process is an anticipation that she is likely to succumb, combined with a desire to avoid the experience of dissonance by choosing an option she believes is less valuable than the alternative (Holton 2009). Since she decides to succumb after weighing the costs and benefits of the alternative options, she will – as Levy points out (quoting Austin) – "succumb to temptation with calm and even finesse" (Levy 2014: 352). But even if loss of control can often be quite deliberate, involving the weighing of costs and benefits, it is surely, sometimes, *not* very deliberate! The best evidence of this comes from cases where people appear to be *taken by surprise* by their own failures to resist their urges or impulses. I am thinking here of actions performed under the influence of sudden anger, sexual arousal, or, perhaps hunger. What drives such failures does not seem to be any process involving anticipation and re-evaluation. Not only do they happen too quickly for that (often in the midst great emotional turmoil), it is not unusual for people acting under impulse to find themselves regretting the action *as* they are carrying it out, sometimes even trying to exercise restraint *at that very moment* ("I can't believe I am doing this! I should stop right now"). While they may well realize they are about to do something they judge it would be better not to do, the reason yielding to temptation in such cases is not mediated by judgment shifts is that the actions occur *before* the weighing of pros and cons. Clearly, an agent doesn't fail to control an impulse by *first* judging that performing the impulsive action is, all things considered, the best thing to do! Before discussing some of the evidence suggesting that diminished impulse control is prevalent among addicts, let me first briefly consider a different conception of self-control, one that is common in the psychological literature.

4. Broad Psychological Self-Control

One reason for thinking that addiction impairs self-control might be that it seems close to being a conceptual truth that a person who is actively addicted to a drug must have impaired control over her consumption of that drug. Consider, for example, the suggestion that a certain nicotine addict who smokes 60 cigarettes a day is in "full control" of her smoking behavior. I think most people would be inclined to find this claim odd, indeed, even contradictory ("An addict who smokes three packs a day? Obviously, her consumption is out of control!"). If this is correct, it suggests that some notion of impaired control might be inherent in the commonsense notion of addiction. Is it equally odd to assume that the nicotine addict genuinely believes smoking in general to be fine, indeed even *better*, all things considered, than not smoking? Clearly this assumption is less odd. Many addicts don't make a serious effort to abstain from drugs. Some don't even want to. It seems perfectly possible to imagine many of them acting, most of the time, in accordance with their consciously held all things considered judgments when they choose to use. Still, insofar as they are "addicted," there seems to be a sense in which they cannot be in "full control" of their consumption. Is that because they are behaving contrary to what they *genuinely value* as seen from their own long-term perspective?

There doesn't seem to be anything odder about the claim that smoking is something the nicotine addict genuinely values from the vantage point of her own long-term perspective. Not all addicts are ambivalent, vacillating, or conflicted about their drug use (Flanagan 2016). Imagine, for example, a non-addicted recreational smoker who genuinely values smoking, perhaps because she associates it with a cool lifestyle. Suppose her smoking escalates and becomes an addiction. Although this means her smoking becomes excessive, she may have no desire to quit. Her long-term perspective and value system remain the same throughout and beyond this transitional phase and she regulates her life in accordance with her values. Still,

when she does become addicted, most people would be inclined, I think, to deny that she is in full control of her cigarette smoking.

In fact, there seem to be many cases where it is at best unclear whether the addicts have lost value-based self-control. Consider, for example, those described in the clinical literature as "severe, chronic addicts," i.e., people who have exhibited signs of dependency for many years (sometimes decades). The search for and use of drugs may now be the single most important activity in their lives, completely dominating their thinking, emotions, and behavior. For some of them, we may suppose, it might even define who they think and feel they *are* and become part of their practical identity. If this is the case, drug-oriented values may be precisely what imposes a cross-temporal structure on their thoughts and actions. It is difficult to see in what sense these addicts should be failing to regulate their life in accordance with their own values. But even so, most people, I think, would be inclined to say that they are not in full control of their drug-oriented behavior.

What all these examples have in common is the suggestion of a sense in which addicts seem to have lost an important form of self-control even when engaging in drug-seeking or drug-taking behavior does not give rise to the kinds of normative conflict associated with failures of value-based or judgment-based self-control. In fact, one might reasonably wonder how often people – even *self-controlled* people – really act on the basis of conscious judgments informed by comparisons of all the relevant available reasons for and against the alternative options, or in accordance with coherent sets of values they in a cool and non-deceptive moment would articulate as definitive of the good, fulfilling and defensible life. It is quite plausible, I think, that both exercises in self-control, as well as failures of self-control, can occur independently of whether these rather demanding conditions obtain. Imagine again the nicotine addict – let us call her Beth – who "in a cool and non-deceptive moment" has decided, based, we can assume, on a careful weighing of the benefits and risks of smoking (pleasant feelings,

enjoyable rituals, probability of lung cancer, and so on), that she wants to continue smoking one more year before she quits. Suppose Beth is at a party and is overcome by a strong urge to smoke another cigarette. However, at that moment she suddenly remembers a TV program featuring a terminally ill lung cancer patient. Even though she discounted the risk of lung cancer in her previous "cool" assessment, the disturbing image of this person now triggers an emotional response causing her, without any consideration of pros and cons, to try to override her urge to smoke another cigarette. Unfortunately, her attempt at restraint fails. Is this a failure of *self-control*? It seems very plausible. A sudden feeling of anxiety activated a goal (not to smoke another cigarette) which caused her to make an effort to refrain from lighting another cigarette. Yet although Beth fails in that goal, she does not act contrary to an all things considered judgment. Indeed, she did not make any, and if she *had* made one at that moment, it would likely have been that smoking another cigarette was, all things considered, better than not smoking one (once she has lit the cigarette she may be content that she failed!). Neither does Beth act contrary to what she genuinely values either.

In the psychological literature Beth's failure would be treated as a paradigmatic example of a failure of self-control. Although it is difficult to find a very precise definition of self-control in this literature, it tends to be used in the sense of involving a conscious effort to override or inhibit competing urges, behaviors, or desires in order to attain particular goals. Since Beth makes a conscious effort to act in accordance with a mental goal representation of herself refraining from smoking another cigarette (a representation that *does not* include a comprehensive assessment of relevant available reasons to choose or reject any of the alternative options), but fails to override the urge to smoke, she fails to behave in conformity with her mental goal representation, and hence to exercise self-control. She is not, however, guilty of any value-based or judgment-based failure of self-control. Often, the term self-control is used, in the psychological literature, interchangeably with "self-regulation," which refers,

even more broadly, to all higher-order (i.e., executive) control of lower-order processes that adapt thought, emotions, or behavior to the demands of the situation and the agent's goal(s) within that situation, including cognitive and motivational operations that are performed automatically and unconsciously (Fitzsimons and Bargh 2004). In the next section I shall argue that malfunctions in capacities associated with self-control in this broad psychological sense undermine addicts' self-control also in the absence of failures of value-based or judgment-based self-control.

5. Addiction as a Disorder of Self-Control

It is widely believed that one of the most important higher-order-control functions is associated with directed attention, i.e., the capacity to voluntarily focus or shift attention (Baumeister and Heatherton 1996). Directed attention represents a common regulatory mechanism for emotion, cognition, and behavior. As MacCoon and colleagues (2004) note, it is a top-down mechanism "capable of enhancing appropriate cognitions, emotions, or behaviors, and suppressing inappropriate cognitions, emotions, or behaviors" (ibid., 422). It is crucial for self-control not only because it is necessary for maintaining focus on longer-range goals, concerns or values, but also because it is required for making conscious efforts to override or inhibit competing motivations. Thus, measures of effortful control often include indices of attention-regulation (Eisenberg 2004).

In a much cited article from 2008, Matt Field and W. Miles Cox review evidence suggesting that addicts' attention is biased toward drug-associated stimuli. Much of this evidence comes from experiments measuring impairment in attention and impulse control such as the addiction Stroop task, where the addict must name the print color of a drug-related word and inhibit the stronger tendency to read the name of a color itself. While addicts exhibit significantly slower reaction times and are more prone to error when naming the color of drug-

related words, control participants do not exhibit this pattern. The standard interpretation of this Stroop interference is that drug-related words capture addicts' attention causing excessive processing of the semantic content of these words, thereby disrupting their color naming. What it seems to suggest is that addicts find it particularly difficult to *ignore* salient, drug-related stimuli, or *exercise* directed attention (which, as noted above, is required for both planning and inhibition) in the presence of drugs or cues predicting drug availability. This hypothesis appears to be corroborated by neuroscientific evidence showing that repeated drug use "sensitizes" certain regions in the brain involved in the motivation of behavior, making them more easily activated by drug-related cues or circumstances. As the neuroscientists Robinson and Berridge note, such sensitization "produces a bias of attentional processing towards drug-associated stimuli" (Robinson and Berridge 2008).

Now, it should be noted that not all researchers are convinced of the cogency of the evidence for attentional bias in addiction (see e.g., Hogarth this volume). However, in what follows I shall assume it is correct. Given this hypothesis, it would be reasonable to infer that cravings are triggered by cues or circumstances via entrenched patterns of attention. A likely effect of such entrenched patterns is a dramatic increase in cognitive load on higher-order functions requiring directed attention, such as inhibition, reasoning, or planning. That is because, unlike non-addicts, every time addicts engage in these activities, they have to make an effort *not* to attend disproportionally to drug-related cues or considerations. If all higher-order functions draw on the same limited resource (as many psychologists believe), and the more of this resource is consumed the more depleted it becomes, then the more depleted addicts will become compared with non-addicts (which is, of course, exactly what the addiction Stroop task shows). Entrenched patterns of attention combined with subsequent depletion reduce the capacity to switch thinking and attention among different tasks or operations in response to changing goals or circumstances. This must have important normative consequences because it

plausibly results in a more inflexible and stimulus-bound practical perspective. Depending on individual differences between addicts (e.g., differences in personal and social resources), such a perspective might be hypothesized to affect their behavior in a variety of ways. For example, by restricting or altering *the reasons* that are salient to them, it might act as an option-limiting cause in some cases. In other words, reasons to abstain from drugs may no longer be recognized as reasons in the presence of drugs or cues predicting drug availability, resulting in a systematic biasing of their practical deliberation, e.g., an over-appreciation of drug-associated features of situations, or blindness to longer-range goals. This, of course, would explain why judgment shifts occur more frequently in addicts than in non-addicts (p. 7). However, as I have argued, self-control failures in addiction might take other forms than loss of control over all things considered judgments. Many addicts plausibly recognize the harmful effects of drug use on their lives even as they are seeking or taking them. For them the greatest difficulty might not be *to see* the salience of alternative reasons at the time of choice, or *to judge* what the best course of action is, all things considered, at that point in time, but to get themselves *to act* on these reasons or judgments. An inflexible and stimulus-bound practical perspective makes this very difficult because the frequency, cue-dependency, and computational speed of cravings produced via entrenched patterns of attention are likely to deplete their inhibitory mechanisms, hence making it harder for them to override these cravings – even if overriding them is precisely what they believe they should be doing.

Together, the biasing and depletion effects associated with an inflexible and stimulus-bound practical perspective are likely to make it, overall, very difficult for addicts to revise or abandon their drug-oriented behavioral pattern even if they are given good and sufficient reasons to do so. This, I contend, is the sense in which impaired self-control is a defining feature of addiction. Difficulties associated with revising or abandoning such a pattern even in the presence of good and sufficient reasons to do so, do not imply that addicts' cravings for drugs

must be irresistible, nor that addicts cannot often take themselves to have reasons – even good reasons – to use drugs, reasons which, on many occasions, might play a part in the explanation of their addictive behavior. First, an inflexible and stimulus-bound practical perspective does not rule out a capacity to resist cravings. It just makes it harder over time to do so, requiring a more sustained effort, and hence increasing the likelihood of failure. Second, there is plenty of evidence that many addicts use drugs to cope with stressful or traumatic experiences. Such experiences may give them reasons to take drugs, reasons that form an important part of the explanation of their addictive behavior (Pickard 2015). Using drugs for such reasons, however, does not rule out the importance of diminished attentional and impulse control in this explanation. My central claim in this chapter is that if a person is genuinely addicted to a particular drug, that implies that she is disposed to suffer from impaired self-control with respect to its use.

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