

Kantian Challenges for the Bioenhancement of Moral Autonomy

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Abstract

In the debate over moral bioenhancement, some object that biochemical, genetic, and neurological interventions aiming at enhancing moral agency threaten the autonomy of persons, as they compromise moral deliberation and motivation. Opponents of this view argue that such interventions may actually enhance autonomy itself, thereby increasing a person's capacity for moral agency. My aim is to explore the various senses of autonomy commonly appealed to in such controversies and to expose their limitations in resolving the central disputed issues. I propose that a Kantian conception of autonomy is more effective in addressing these issues, as it specifies the key features that inform an intelligible account of moral worth and moral law. A consideration of these features is typically lacking in the arguments advanced by contenders in these debates. Guided by a Kantian framework, I argue that moral bioenhancement projects directed at affecting moral autonomy are not as promising as they appear, for both metaphysical and empirical reasons.

1. Introduction

Among the central issues in debates over moral bioenhancement is the threat this type of enhancement poses to human autonomy. Bioenhancement may take a variety of forms including biochemical, genetic, neurological, and bio-technological interventions. While some maintain that moral bioenhancement, if possible, would surely threaten the autonomy of persons and consequently the authenticity of moral agency, others argue that such interventions may actually enhance autonomy itself, thereby increasing a person's capacity for moral agency.¹ My interest in this chapter is to explore the various senses of autonomy commonly appealed to in such controversies, which I do not think fully address the complexity of the

¹ Jona Specker, Farah Focquaert, Kasper Raus, Sigrid Sterckx, and Maartje Schermer, in 'The Ethical Desirability of Moral Bioenhancement: A Review of Reasons', *BMC Medical Ethics* 15:67 (2014): <https://doi.org/10.1186/1472-6939-15-67>, offer a helpful summary of the various positions in the debate.

issues involved.² I then show how a properly construed Kantian conception of *autonomy* is more effective in identifying the relevant target in moral bioenhancement endeavours. Specifically, I argue that it is more than just the capacity for *instrumental reasoning* that is operative in the kind of autonomy necessary for moral agency. It is the typically overlooked notion of “acting from the *motive* of the moral law”. Thus, if biological enhancement is to facilitate genuine *moral enhancement*, it must focus its efforts on affecting the agent’s *motive* for moral action, which is rooted in the absolute worth of the agent’s personal autonomy. The highest form of an agent’s personal autonomy is their *moral autonomy*. I argue, however, that the strategies thus far advanced for enhancing moral autonomy are both metaphysically unintelligible and empirically implausible.

On a motive-based account of moral agency, a genuine form of moral bioenhancement is one that targets the *motives* of moral agents. In the sections that follow, I examine a few key issues that arise concerning the possibility of bioenhancement directed at rendering the *motives* of moral agents more morally worthy. Specifically, I show how enhancing the *motives* of moral agents, and not just their behaviour, is inextricably linked with enhancing their moral autonomy. I then present some puzzles that arise from the conception of a bioenhanced moral autonomy, which I think ought to inform our considerations about the possibility of genuine moral bioenhancement.

2. Defending Motive-Based Moral Bioenhancement

Over the past few decades, scholars and researchers have defended different forms of moral bioenhancement varying from mild to radical. Ingmar Persson and Julian Savulescu occupy the radical end of the spectrum, defending extreme forms of bioenhancement, which they usually justify on utilitarian grounds. We need to engage in the widespread, obligatory, moral bioenhancement of human beings, they claim, in order to avoid the dangers that the development of other forms of technology pose for the well-being of the human species.³

² See Joel Feinberg, ‘Autonomy’, in John Philip Christman (ed.), *The Inner Citadel: Essays on Individual Autonomy* (Oxford: Oxford University Press, 1989), 27–53.

³ See Ingmar Persson and Julian Savulescu, ‘The Perils of Cognitive Enhancement and the Urgent Imperative to Enhance the Moral Character of Humanity’, *Journal of Applied Philosophy* 25:3 (2008), 162–177, and

They maintain, moreover, that this goal even justifies our depriving human beings of their autonomy, as would be the case in an obligatory, programmatic system of moral bioenhancement. Their position rests on the view that autonomy is just one of many values and that we should not consider it to be *the* most valuable. They assert that ‘the value of human well-being and respect for the most basic rights outweighs the value of autonomy’.⁴ What is lacking in Persson and Savulescu’s account, however, is a reason *why* human well-being is of such fundamental value. This reason, I maintain, can only be provided by a deontological moral framework.⁵

Specifically, this reason may be found at the basis of Kantian moral theory, which acknowledges that human beings are not merely things but *persons*, i.e., beings possessing rationality and a will. As persons, they possess a dignity that no other things possess. They have this dignity by virtue of being capable of legislating to themselves the moral law of reason.⁶ This capacity constitutes their *moral* autonomy. It is this autonomy that grants human beings their unconditional worth. It is, therefore, the autonomy of human beings that morality serves. This is precisely what Kant’s moral law, in the form of the categorical imperative, commands: always treat humanity as an end in itself, never as a means only to some other end. Kant explains, however, that we treat humanity merely as a means precisely when we fail to respect a person’s autonomy. Thus, given that valuing humanity consists exactly in valuing human autonomy, it is logically impossible to value persons as ends in themselves if our actions *threaten* their autonomy. Apparently, however, Persson and Savulescu think this *is* possible, and legitimate. Clearly, the reason for the discrepancy between Kant’s view and that of Persson and Savulescu derives from their use of two distinct senses of *autonomy*.

Ingmar Persson and Julian Savulescu, *Unfit for the Future: The Need for Moral Enhancement* (Oxford: Oxford University Press, 2012).

⁴ Julian Savulescu and Ingmar Persson, ‘Moral Enhancement, Freedom and the God Machine’, *The Monist* 95:3 (2012), 399–421, 416.

⁵ Robert Sparrow, ‘Better Living Through Chemistry? A Reply to Savulescu and Persson on “Moral Enhancement”’, *Journal of Applied Philosophy* 31:1 (2014), 23–32, 25, also draws attention to deontological considerations in these debates.

⁶ Immanuel Kant, *Groundwork of the Metaphysics of Morals*, trans. and ed. by Mary J. Gregor, in *Practical Philosophy: The Cambridge Edition of the Works of Immanuel Kant* (Cambridge: Cambridge University Press, 1996), 37–108, 86–88 (4: 437–440 in the *Akademie* edition of Kant’s works [hereafter AA]).

According to Kant, the kind of autonomy required for morality is not merely the agent's personal autonomy, i.e., their capacity to choose between alternatives. Rather, it is the kind of autonomy that enables a rational being a) to choose their subjective moral principles in accordance with the constraints issuing from reason, in the form of universal moral law, and b) to have their will guided in its choice and motivation by this law.⁷ This is *moral autonomy*. I do not mean to suggest that moral autonomy is, for Kant, distinct in kind from general personal autonomy, but rather that moral autonomy is the highest expression of personal autonomy.⁸ As Kant states, 'autonomy of the will is the property of the will by which it is a law to itself'.⁹ Kant contrasts *autonomy* to *heteronomy*, which is the condition of the will's seeking its law in the spurious *objects of volition*, i.e., inclination, as opposed to *reason*.¹⁰ Heteronomy gives rise to merely instrumental reasoning while autonomy generates moral reasoning. Through moral reasoning, the moral law does not *necessitate* the will of rational agents but merely *constrains* it. This constraint takes the form of self-imposed *duties*, i.e., moral obligations. In this way, rational beings are *self-legislating* beings. The capacity of persons to legislate to themselves the moral law of reason is what Kant means by *autonomy* – the feature that gives persons their absolute moral worth and dignity.¹¹ On this view, any moral bioenhancement programme that aims to achieve some moral end at the cost of threatening or devaluing human autonomy would be morally incoherent.

Oddly, the general approach that Persson and Savulescu propose acknowledges the importance of enhancing the agent's *moral motivation*.¹² In this respect, their position echoes that of Kant, which requires not only that the agent act *in accordance with* the moral law but also *from the motive of* the moral law. In a moral context, the sole motive of the agent must be 'respect for the moral law', as opposed

⁷ Kant, *Groundwork of the Metaphysics of Morals*, 88–90 (AA 4: 439–441).

⁸ For further discussion of this point see Anna Frammartino Wilks, 'Kantian Foundations for a Cosmocentric Ethic', in James S. J. Schwartz and Tony Milligan (eds), *The Ethics of Space Exploration* (Cham: Springer, 2016), 181–194.

⁹ Kant, *Groundwork of the Metaphysics of Morals*, 88–89 (AA 4: 440).

¹⁰ Kant, *Groundwork of the Metaphysics of Morals*, 88–90 (AA 4: 440–441).

¹¹ Kant, *Groundwork of the Metaphysics of Morals*, 86–90 (AA 4: 437–441).

¹² Persson and Savulescu, 'The Perils of Cognitive Enhancement and the Urgent Imperative to Enhance the Moral Character of Humanity', 167.

to material desires, personal goals, sentiments, etc.¹³ Given that respecting the moral law essentially amounts to respecting the autonomy of persons, it is difficult to see how moral action could be properly motivated if the autonomy of persons is subordinated to some other end. This, however, is precisely what Persson and Savulescu ultimately advocate. While recognising the value of autonomy for moral motivation, Persson and Savulescu defend obligatory, moral bioenhancement programmes, even if they have the effect of diminishing the agent's autonomy. The reason they offer for this is that autonomy is merely *one* among many crucial values in morality, such as the virtues of altruism and justice.¹⁴ But it is not clear *why* altruism and justice should be fostered, if not to respect the autonomy of persons. The problem is this. Given that the will of the agent must be autonomous in its choice to be guided by the moral law, how can it be possible to biochemically *enhance* the agent's autonomy without negating that autonomy, and thereby rendering the agent *determined*? How can moral motivation be enhanced without rendering the motivation mechanical, artificial, or inauthentic, and thereby compromising the person's moral agency and worth?

This problem is further complicated by the fact that moral motivation is challenged by weakness of will, which Aristotle refers to as *akrasia*.¹⁵ The will is often impeded in its moral intentions. In such cases we recognise what the morally correct action is, but we nonetheless fail to perform that action because of competing, influential factors such as emotions, material goals, ambitions, and desires. Kant also acknowledges the reality of this problem, arguing that as rational beings (rather than divine beings) we need to be constrained by moral law through the duties it entails. The key point here is that our will be merely *constrained* by this law, not *necessitated* by it, otherwise we would not be truly autonomous. Given this limiting condition, how is the problem of *akrasia* to be addressed through moral bioenhancement? Owen Schaefer indicates that two possible approaches

¹³ Immanuel Kant, *Critique of Practical Reason*, trans. and ed. by Mary J. Gregor, in *Practical Philosophy* (Cambridge: Cambridge University Press, 1996), 133–272, 198–207 (AA 5: 72–83). Kant acknowledges, however, that not every context is a moral one, and thus not every instance of personal autonomy involves the exercise of moral autonomy.

¹⁴ Persson and Savulescu, 'The Perils of Cognitive Enhancement and the Urgent Imperative to Enhance the Moral Character of Humanity', 167–168.

¹⁵ Aristotle, *Nicomachean Ethics*, VI.

are open to us: the *direct approach* and the *indirect approach*. He distinguishes these in the following way. Direct moral enhancement ‘is designed to bring someone’s beliefs, motives, and/or actions in line with what the enhancer believes are the correct moral beliefs, motives, and/or actions’.¹⁶ Indirect moral enhancement, by contrast, ‘is designed to make people more reliably produce the morally correct ideas, motives, and/or actions’.¹⁷ Schaefer defends only indirect moral bioenhancement and rejects direct forms, such as the widespread, compulsory programmes that aim to affect large groups or whole societies. I agree with Schaefer’s general position, but for reasons different from those Schaefer offers.

Schaefer’s main objection to direct moral enhancement is another instance of a utilitarian approach. He argues that direct moral enhancement compromises the moral deliberation of people in that it deprives them of their freedom to think for themselves, to engage in genuine reasoning processes, and to form their own opinions, including dissenting opinions from those of the enhancers – who are themselves morally fallible. He stresses that ‘moral fallibility will entail a strong instrumental reason to preserve moral disagreement in a society, while moral reasoning and individuality are values threatened by the absence of moral disagreement’.¹⁸ Although I agree with this precept, I do not think it is the most pertinent reason for refraining from direct forms of moral bioenhancement. The most critical threat that such interventions pose is not to one’s freedom to think and do as one pleases (although this is certainly important). More serious is the threat they pose to one’s ability to be guided and motivated by the moral law. The reason, again, why this motive is so important is that when one operates on this motive, one recognises fully the reason why the moral law is sovereign – *because it respects the autonomy of rational beings*. Thus, the kind of reasoning that is crucial in morality is not the *instrumental reasoning* that Schaefer, in the tradition of Mill and Hume, places at the centre of moral deliberation. If this were so, then *cognitive* enhancement alone would suffice to achieve this end. Rather, the kind of reasoning specific to, and necessary for, morality is that which is grounded in the moral law, which the agent self-legislates when their will operates autonomously, i.e., in a way unaffected by ulterior forces, motives, or purposes – regardless of their utility. It is the capacity to choose and act, unimpeded, in

¹⁶ G. Owen Schaefer, ‘Direct vs. Indirect Moral Enhancement’, *Kennedy Institute of Ethics Journal* 25:3 (2015), 261–289, 262.

¹⁷ Schaefer, ‘Direct vs. Indirect Moral Enhancement’, 262.

¹⁸ Schaefer, ‘Direct vs. Indirect Moral Enhancement’, 264.

accordance with one's better judgement, i.e., one's *rational* judgement. This is the kind of reasoning that may ward off *akrasia*. This is *moral* reasoning, and it proceeds from *moral* autonomy.¹⁹

3. The Possibility of Direct Forms of Moral Bioenhancement

If the goal of bioenhancement is to enhance *moral* reasoning, as characterised above, it is not clear how direct forms of bioenhancement could bring this about, since moral reasoning must originate autonomously in the rational agents themselves, not in some external “enhancer”. Persson and Savulescu also acknowledge this limitation of direct approaches to moral bioenhancement. Thus, while they still think such interventions are justified, they do not consider them to be genuine instances of *moral* bioenhancement, since these procedures fail to enhance the *moral motivation* of the agent. Their concern is that what is lacking for this motivation is the actual act of *deliberation* on the part of the agent, in their decision to perform the morally right action. Deliberation of this sort, they say, requires effort and learning, and heightened cognitive capacities. However, their account only captures the *instrumental reasoning* involved in moral deliberation. It fails to appreciate the Kantian sense of moral deliberation, which stresses that the correct *motive* for moral action must be *respect for the moral law* that commands the acknowledgement of the absolute worth of autonomous beings. No other motive, regardless of its degree of utility, counts as an incentive to genuinely *moral* action, not even the appeal to *altruism* and *justice* – as in Persson and Savulescu's view. Their utilitarian position seems to invest *morality* itself with absolute worth, rather than the persons in service of whom morality exists.

This view, as Michael Hauskeller aptly points out, turns rational beings into mere means rather than ends in themselves. Hauskeller argues that ‘if people have become mere means to the end of morality and are no longer ends in themselves, what then is the point of morality, of being moral in the way we treat each other?’²⁰ The absolute worth of self-legislating beings is what gives force and substance to

¹⁹ See Allen W. Wood, *Kantian Ethics* (Cambridge: Cambridge University Press, 2008), 106–142, for further discussion of Kant's notions of autonomy and freedom.

²⁰ Michael Hauskeller, *Better Humans? Understanding the Enhancement Project* (Durham: Acumen, 2013), 52.

the moral law. This is why respect for the moral law should be the guiding motive for moral action. From a thoroughgoing deontological perspective, the notion of “direct moral bioenhancement” turns out to be self-contradicting, since moral reasoning must be autonomous reasoning, and “direct” here actually indicates that the “reasoning” is imposed on the agent by another source, i.e., an external agent – the enhancer. I maintain, therefore, that we should refrain from engaging in direct forms of widespread, obligatory, and externally imposed moral bioenhancement, and that the deontological reasons for refraining from it are more compelling than the utilitarian reasons that are typically offered.

Nonetheless, the impermissibility of direct forms of widespread, obligatory, and involuntary moral bioenhancement does not automatically rule out special instances of such interventions. Thomas Douglas forcefully defends this position.²¹ Instances of these cases would be those involving subjects who had already performed serious immoral acts. Their consequent loss of freedom is the price to be paid for their moral misconduct, i.e., for their failure to respect the autonomy of other persons. I think Kant would agree with this general position. Unlike Douglas, however, Kant would not consider such intervention “moral enhancement”, as it fails to enhance the agent’s moral motivation.²² The use of such interventions simply amounts to an *act of justice*, in the form of punishment for wrong-doing, though perhaps a more enhanced form of moral punishment in comparison with those in current use.

A possible objection to this position might take the following form. Although direct forms of intervention do not constitute genuine *enhancement*, they may constitute genuine *treatment* – as opposed to mere punishment. In the case of treatment, the consequence is not the improvement of a trait or capacity *beyond* the norm but merely to a degree that *meets* the norm for that species. However, the validity of the distinction between enhancement and treatment has been contested. David DeGrazia, for example, contends that these concepts are, in fact, indistinct. Consequently, DeGrazia defines *human enhancement* in a more neutral way, as ‘any deliberate intervention that aims to improve an existing capacity, select for a desired capacity,

²¹ Thomas Douglas, ‘Moral Enhancement’, *Journal of Applied Philosophy* 25:3 (2008), 228–245, 239–240.

²² William Simkulet, ‘Intention and Moral Enhancement’, *Bioethics* 30:9 (2016), 714–720, maintains that a crucial missing element here is ‘intention’, which is also required for moral motivation.

or create a new capacity in a human being'.²³ This definition deliberately blurs the treatment/enhancement distinction, as DeGrazia does not think that *treatment* differs from the aforementioned goals in any substantive sense. In contrast, Nicholas Agar defends the distinction by appealing to the difference between *achieving* and *exceeding* a norm.²⁴ It may be questioned, however, whether these categories are actually dichotomous. In fact, Raus, et al. identify a third type of intervention, whereby the individual or group being enhanced begins at a lower than average level of moral capacity, and is brought to a higher than average level. This form of intervention, they argue, is partly treatment and partly enhancement, posing further challenges for demarcating the boundary between moral treatment and moral enhancement. They suggest acknowledging 'a continuum that ranges from below average functioning of moral capacities through to above average functioning'.²⁵ I find Raus, et al.'s position compelling. What this continuum account of treatment and enhancement entails, I maintain, is that the same basic conditions that hold for the one may also hold for the other – though perhaps to a lesser degree, or in a different way. The fundamental condition required for *both* enhancement and treatment is some elevation or increase in efficacy of the agent's moral motivation, which requires affecting their *autonomy*. This requirement, however, fails to be met both for enhancement and treatment in *direct* forms of moral bioenhancement. The reason is that such direct procedures do not at all affect the agent's autonomy in a manner that enables them to engage more effectively in the full range of *moral reasoning* that grounds moral deliberation and motivation; that is, it does not affect their *moral* autonomy. Given that direct forms of intervention are inefficacious in achieving this end, regardless of whether the goal is to achieve or exceed the moral norm, such interventions constitute neither enhancement nor treatment. Thus, a "directly enhanced" individual has neither been *morally enhanced* nor *morally treated* at all. Rather, they have merely been *punished* for failing to exercise effectively their autonomy as moral agents.

²³ David DeGrazia, 'Moral Enhancement, Freedom, and What We (Should) Value in Moral Behaviour', *J Med Ethics* 40:6 (2014), 361–368, 361.

²⁴ Nicholas Agar, 'A Question About Defining Moral Bioenhancement', *J Med Ethics* 40:6 (2014), 369–370.

²⁵ Kaspar Raus, Farah Focquaert, Maartje Schermer, Jona Specker, and Sigrid Sterckx, 'On Defining Moral Enhancement: A Clarificatory Taxonomy', *Neuroethics* 7:3 (2014), 263–273, 267.

A cautionary note is called for here. The implementation of bioenhancements to punish individuals for radical cases of moral misconduct does *not* imply that their moral worth is completely determined by their biology. Some purely reductionist accounts of morality, however, might entail this view. Philip Robichaud draws attention to this feature of naturalistic accounts of moral character. He says that ‘to write [certain] agents off as morally bad or vicious simply because of their biological features is to commit a blatant naturalistic fallacy’.²⁶ This insight informs Robichaud’s view that we ought not to expect moral enhancement projects to be able to affect that dimension of persons that determines their value as moral beings.²⁷ In section 5 of this chapter, I show that there are also serious problems with a purely naturalistic account of *moral autonomy*. Before turning to that, however, I consider, in the following section, whether indirect forms of moral bioenhancement offer more promise than direct forms.

4. The Possibility of Indirect Forms of Moral Bioenhancement

I now address the question of whether *indirect* moral bioenhancement avoids the serious problems entailed by direct moral bioenhancement. An appropriate springboard, I think, is the *minimal moral commonsensism* advocated by John Shook, as it convincingly exemplifies the advantages of the indirect approach. On Shook’s view, there are certain essential objectives that it is reasonable for moral enhancement projects to strive to achieve. These include improving moral sensitivity and thoughtfulness, moral judgement and motivation, and moral intention and will power.²⁸ Shook thinks a considerable advantage of these objectives is that they are scientifically identifiable. It is of particular importance that moral enhancement projects set for themselves such scientifically identifiable objectives, Shook maintains, in the absence of a scientifically identifiable *unified*

²⁶ Philip Robichaud, ‘Moral Capacity Enhancement Does Not Entail Moral Worth Enhancement’, *The American Journal of Bioethics* 14:4 (2014), 33–34.

²⁷ Moreover, Allen Buchanan, ‘Moral Status and Human Enhancement’, *Philosophy and Public Affairs* 37:4 (2009), 346–381, worries that the enhanced might be considered to have greater moral status than the unenhanced, giving rise to moral inequality between them.

²⁸ John R. Shook, ‘Neuroethics and the Possible Types of Moral Enhancement’, *AJOB Neuroscience* 3:4 (2012), 3–14, 5–6.

cognitive system responsible for morality. 'It already appears', Shook explains, 'that there is no unified cognitive system responsible for the formation and enactment of moral judgments, because separable factors are more heavily utilized for some kinds of moral judgments rather than others'.²⁹ The objectives Shook specifies are also exemplified in Douglas' account of what human enhancement should involve. According to Douglas, enhancement works by enabling the individual to resist the influence of their *brute self*, and increase the influence of their *true self*, and in this way granting their true self greater freedom to run the show. Thus, in contrast to those who claim that bioenhancement *threatens* freedom, Douglas construes enhancement as *increasing* the enhanced subject's 'freedom to have and to act upon good motives', as opposed to diminishing their 'freedom to have and to act upon bad ones'.³⁰ What Douglas offers here is a means of addressing the problem of *akrasia*. He acknowledges, with Schaefer, that '*akrasia* reduction' is the primary goal of moral enhancement, and best achieved by indirect approaches.

Schaefer's distinction between direct and indirect moral enhancement is closely related to the distinction between *behaviour-oriented* and *capacity-oriented* moral enhancement.³¹ As Raus, et al. note, contends in the moral enhancement debate tend to characterise moral enhancement in one of two ways, as interventions that bring about either a) a real or intended effect on the enhanced individual's *behaviour*, or b) a real or intended effect on the enhanced individual's *capacities for moral reflection*.³² The capacities-oriented conception of moral enhancement is analogous to what some refer to as the *functional-augmentative approach to enhancement*. According to this view, enhancements in general are interventions that 'improve some capacity or function (such as cognition, vision, hearing, alertness) by increasing the ability of the function to do what it normally does'.³³ In the case of moral enhancement, the relevant capacities are typically considered to be the capacities for sympathy or

²⁹ Shook, 'Neuroethics and the Possible Types of Moral Enhancement', 5–6.

³⁰ Douglas, 'Moral Enhancement', 240.

³¹ Raus, et al., in 'On Defining Moral Enhancement: A Clarificatory Taxonomy', 267, discuss a related distinction between *active involvement* and *passive receiving*, analogous to the distinction between indirect and direct approaches.

³² Raus, et al., 'On Defining Moral Enhancement: A Clarificatory Taxonomy', 268.

³³ Brian D. Earp, Anders Sandberg, Guy Kahane, and Julian Savulescu, 'When is Diminishment a Form of Enhancement? Rethinking

empathy, justice or fairness, altruism, righteous anger, etc., commonly referred to as *first-order capacities*. Against the capacities-oriented approach, Douglas has argued that it is not the case that an increase in certain capacities is desirable in all situations. Whether or not an increase is desirable in a given situation depends on a variety of factors, such as the agent's baseline moral motives and dispositions, the agent's role in a specific social context, etc.³⁴ Brian Earp, et al. maintain, in fact, that in some circumstances it may be more desirable to *diminish* a particular function or capacity to bring about moral enhancement. For example, to achieve the requisite partiality for justice, sometimes it is necessary to diminish one's sympathy for the victim. Thus, the goal should be not to increase, e.g., sympathy *simpliciter*, but rather to improve 'second-order empathic control'.³⁵ This approach, I think, represents a refinement of both Schafer and Shook's approach.

Endorsing the need for moral bioenhancement to augment the agent's *second-order* or *higher-order capacity*, Earp, et al. defend what they call an *agential* approach to moral enhancement. Their position resembles an Aristotelian-type virtue ethics, with its emphasis on the development of the moral *character* of the agent, rather than the performance of certain kinds of actions, or the observance of certain principles. Earp, et al. characterise this higher order capacity as the capacity to 'respond flexibly to different situations, and to employ or tap into different cognitive and emotional resources as necessary to arrive at the motives, decisions, and behaviors that are morally desirable given the context'.³⁶ Augmenting in the agent this capacity to modulate their moral responses in a reason-sensitive and context-dependent manner is what Earp, et al. think would constitute a more reliable strategy for moral bioenhancement. Because this approach does not aim at directly modifying particular moral traits, functions, or sentiments, but rather at affecting the higher-order capacity to regulate them, Earp, et al. think this form of moral enhancement amounts to *facilitation* rather than *determination*

the Enhancement Debate in Biomedical Ethics', *Frontiers in Systems Neuroscience* 8:12 (2014), 2.

³⁴ Douglas, 'Moral Enhancement', 228–245, and, from the same author, see 'Moral Enhancement via Direct Emotion Modulation: A Reply to John Harris', *Bioethics* 27:3 (2013), 160–168.

³⁵ Brian D. Earp, Thomas Douglas, and Julian Savulescu, 'Moral Neuroenhancement', in S. Johnson and K. Rommelfanger (eds), *Routledge Handbook of Neuroethics* (New York: Routledge, 2017), 166–184, 170.

³⁶ Earp, et al., 'Moral Neuroenhancement', 169.

of the agent's moral actions. This, they argue, permits the development of a genuine moral understanding, as opposed to generating a merely mechanical form of moral behaviour. As John Harris and Robert Sparrow argue, this moral understanding is impeded by *direct* approaches to moral enhancement.³⁷ In contrast, the agential approach fosters the agent's critical reflection on moral values, and augments their ability to deliberate, in a rational manner, on the relevant moral content.

The agential approach that Earp, et al. advocate goes a long way in addressing some of the weaknesses of the positions I examined earlier in this essay. In line with this *agential* indirect form of moral bioenhancement, the approach that Owen Schaefer, et al. propose specifies even further the target to be aimed at to achieve the desired ends. They propose that the particular higher order capacity that would enable an individual to function more effectively as a moral agent is the capacity for *autonomy*. If enhancing moral motivation is the goal, then the requisite intervention is one that motivates the enhanced individual to *choose* to be moral rather than immoral, as opposed to merely compelling them to do so. Clearly, this would involve targeting the individual's *will*. Because the exercise of one's will is, generally speaking, what is conceived of as *autonomy*, it seems that enhancing moral motivation necessitates enhancing autonomy.

With respect to the possibility of this endeavour, however, many have expressed serious concerns and scepticism. Among the strongest of the sceptics is Harris.³⁸ Contrary to the view that moral bioenhancement necessarily diminishes autonomy, Schaefer, et al. propose that certain forms of bioenhancement may enhance autonomy itself. They maintain that the common feature pertaining to the various mainstream accounts of autonomy is *reasoning ability*. They argue that, since reasoning ability is a cognitive function, its improvement may be achieved through *cognitive* enhancement, which, in turn, would enhance autonomy. Schaefer, et al. specify several influential conceptions of autonomy which they think indicate the

³⁷ See John Harris, 'Moral Enhancement and Freedom', *Bioethics* 25:2 (2011), 104, and Sparrow, 'Better Living Through Chemistry?', 23–32.

³⁸ John Harris, 'Moral Enhancement and Freedom', 102–111, and John Harris, *How to Be Good: The Possibility of Moral Enhancement* (Oxford: Oxford University Press, 2016), 56–109. Although in the latter work Harris appears to have moved closer to Persson and Savulescu on many points, he still seems resolute in his claim that moral bioenhancement is bound to threaten human freedom.

strong relationship between cognitive capacity and self-determination. On Harry Frankfurt's view, autonomy consists in the coherence between one's higher order and lower order desires; Tom Beauchamp and James Childress take autonomy to involve understanding and intentionality, as well as psychological integration and the resistance to manipulative and deceptive influences; Bernard Berofsky locates autonomy in competence and individuality.³⁹ All of these, and many other conceptions of autonomy, they assert, incorporate fundamental cognitive capacities, which foster the instrumental reasoning and deliberation that characterise self-determination. Enhanced autonomy, they conclude, would be a likely by-product of the enhancement of those cognitive capacities.

While Schaefer, et al. recognise that instrumental rationality is not *identical* to autonomy, nor even sufficient for it, they maintain that, nonetheless, 'cognition and reasoning capacity can significantly contribute to agents' autonomy'.⁴⁰ They conclude by 'encouraging people to voluntarily undergo [bioenhancements] themselves, as a way to live more autonomous lives'.⁴¹ I have briefly offered my general assessment of the *indirect* approach to moral bioenhancement throughout this section. In the section that follows, I offer a more detailed assessment, focussing on the bioenhancement of *autonomy* – especially in light of the proposals of Schaefer, et al. just presented.

5. Assessing Claims to the Bioenhancement of Autonomy

My assessment of the claim that it may be possible to bioenhance autonomy appeals to two types of argument: one based on metaphysical grounds, the other on empirical grounds. These arguments, however, are intertwined, as we shall see. My general concern about the claim that "autonomy itself could be enhanced" is that it is very misleading. The difference between the claims: "(a) facilitates autonomy" and "(a) enhances autonomy" can be very great, depending on how one understands not only the notion of *autonomy* but also the notion of *enhancement*. My view is that improving the relevant cognitive capacities – specifically, reasoning ability – does *not* amount to enhancing autonomy – even though it may render the autonomy of agents more *efficacious*. While bioenhancements that are biochemically-based,

³⁹ These views are cited in G. Owen Schaefer, Guy Kahane and Julian Savulescu, 'Autonomy and Enhancement', *Neuroethics* 7:2 (2014), 123–136.

⁴⁰ Schaefer, et al., 'Autonomy and Enhancement', 123.

⁴¹ Schaefer, et al., 'Autonomy and Enhancement', 135.

genetically engineered, or neurologically facilitated may have an effect on the agent's ability to *respond* to the commands of its autonomous will, this is not equivalent to an alteration in the will's capacity to *be* autonomous. The difference is a profoundly metaphysical one.

The view that the will of a rational agent could be affected as a consequence of the bioenhancement of cognitive capacities, in a manner that would augment or diminish their *autonomy*, presupposes a reductionist account of the will. Such an account, however, has not yet been supplied by any of the natural sciences. At most, it may be argued that the bioenhancement of cognitive capacities may promote the agent's ability to be less affected by objects of volition that may otherwise inhibit the agent from acting in accordance with their autonomous will. This is not identical, however, to affecting the *will* itself, and motivating *it* to choose the moral law more effectively. In the Kantian framework, only the biological/psychological workings of the cognitive faculties, corresponding to the phenomenal self, can be affected by natural causes. The will, a function of the noumenal self, is independent of natural causes, as it is *self-determined*.⁴² Jotterand voices a similar objection in his remark that 'the emphasis on the control of moral emotions appears reductive and one-sided in the sense that it conflates moral reasoning (as practical reasoning) with moral psychology (how moral reasoning acts on one's motivational/emotional states)'.⁴³ Even on a particular type of compatibilist view, which some, such as Allen Wood, ascribe to Kant, bioenhancements are more reasonably viewed as affecting the material body of the agent, not their will.⁴⁴ Bioenhanced cognitive capacities might also promote the agent's *instrumental reasoning*, which could improve their ability to determine the most effective means for carrying out the will's resolve, but not to *determine* its resolve. To be sure, the above argument does not entail that all efforts towards the bioenhancement of cognitive capacities are, therefore, ill-directed, illegitimate, or lacking in utility. The argument is only intended to expose the weakness of the claim that cognitive bioenhancement, which may promote an individual's capacity for instrumental reasoning, may thereby have an effect on the will itself and its moral motivation.

⁴² Kant, *Critique of Practical Reason*, 185–187 (AA 5: 57–58).

⁴³ Fabrice Jotterand, "Virtue Engineering" and Moral Agency: Will Post-Humans Still Need the Virtues?, *AJOB Neuroscience* 2:4 (2011), 5.

⁴⁴ See Allen W. Wood, 'Kant's Compatibilism', in Allen W. Wood (ed.), *Self and Nature in Kant's Philosophy* (Ithaca: Cornell Press, 1984), 73–101, for an account of this type of compatibilism.

In principle, if it *were* possible to devise a complete set of naturalistic criteria that could serve as the conditions for bioenhancing moral motivation, the argument Schaefer, et al. propose would be more cogent. However, scepticism on this point is occasioned by recent empirical findings. In a report concerning the current use of non-invasive brain stimulation for moral enhancement, Darby and Pascual-Leone confirm that ‘the actual physiological effects of specific brain stimulation parameters remain unknown’.⁴⁵ We may know that a particular form of brain stimulation modifies moral behaviour in some way, without necessarily knowing whether the modification was the result of a modification in brain activity of a specific region or whether it was due to a more complex pattern of brain activity modification.⁴⁶ Darby and Pascual-Leone echo the view expressed by many that ‘rather than improving one single moral capacity, brain stimulation alters specific neuropsychological processes contributing to moral behavior. Enhancement of these processes can lead to morally enhanced behaviour in some situations, but less morally desirable behavior in other circumstances’.⁴⁷ Clearly, these consequences are less than optimal.⁴⁸ Molly Crockett warns about misleading laboratory studies purported to demonstrate that selective serotonin reuptake inhibitors have been shown to be somewhat effective in the treatment of aggressive behaviour. These studies neglect to mention that this is true only for certain types of individuals. Specifically, ‘serotonin appears to be involved more in reactive, impulsive aggression (e.g., personality disorders) than in premeditated aggression (e.g., psychopathy)’.⁴⁹ Furthermore, Crockett draws attention to inadequate sample sizes of studies indicating that single genes considerably predispose individuals towards particular virtues. She also stresses that most neurotransmitters perform

⁴⁵ R. Ryan Darby and Alvaro Pascual-Leone, ‘Moral Enhancement Using Non-Invasive Brain Stimulation’, *Frontiers in Human Neuroscience* 11:77 (2017), 2.

⁴⁶ For further discussion of related issues see Patricia S. Churchland, *Braintrust: What Neuroscience Tells Us About Morality* (Princeton and Oxford: Princeton University Press, 2011).

⁴⁷ Darby, et al., ‘Moral Enhancement Using Non-Invasive Brain Stimulation’, 8.

⁴⁸ Hauskeller points out that there are also less than optimal cultural and sociological consequences to human enhancement projects in general; see Michael Hauskeller, *Mythologies of Transhumanism* (London: Palgrave Macmillan, 2016).

⁴⁹ Molly J. Crockett, ‘Moral Bioenhancement: A Neuroscientific Perspective’, *Journal of Medical Ethics* 40:6 (2014), 370–371, 370.

multiple functions and are located in numerous regions scattered throughout the brain, rendering them difficult to track and control; the attempt to manipulate them may give rise to unintended and undesirable effects.⁵⁰

Moreover, while acknowledging that significant progress may certainly be forthcoming that could reduce the undesirable effects of these kinds of interventions, Crockett remarks that, by targeting very specific receptor types in particular neural locations, other problems ensue from this precision. Crockett agrees with DeGrazia, who asserts that ‘highly selective and targeted forms of moral bioenhancement may pose a greater threat to freedom’.⁵¹ The reason is that, the more focussed the target, the more *direct* the effect on the agent’s behaviour, which entails less control of the agent over their deliberation. This problem is particularly pertinent, I think, to attempts at moral bioenhancement via gene editing, especially in its most current form – using CRISPR-Cas9. This molecular technology may modify any segment of an individual’s genome, sometimes by the mere modification of ‘single incorrect letters of DNA out of the 3.2 billion letters that make up the human genome’.⁵² Jennifer Doudna, one of the founders of the CRISPR technology, cautions that there is no reason to think this technology will stop at treatment: ‘once it becomes feasible to transform an embryo’s mutated genes into “normal” ones, there will certainly be temptations to upgrade normal genes to supposedly superior versions’, even for the germline.⁵³ Though some, for example Hauskeller, remain unconvinced of the *need* for human enhancement in general, others advocate a moral obligation to implement such technology to address the unfairness of ‘the genetic lottery’.⁵⁴

⁵⁰ See, however, Nick Bostrom and Anders Sandberg, ‘The Wisdom of Nature: An Evolutionary Heuristic for Human Enhancement’, in Julian Savulescu and Nick Bostrom (eds), *Human Enhancement* (Oxford: Oxford University Press, 2009), 375–416, for suggestions on developing bioenhancements that minimise risk and increase benefits.

⁵¹ Crockett, ‘Moral Bioenhancement: A Neuroscientific Perspective’, 371.

⁵² Jennifer A. Doudna and Samuel H. Sternberg, *A Crack in Creation: Gene Editing and the Unthinkable Power to Control Evolution* (Boston and New York: Houghton Mifflin Harcourt, 2017), xiii–xvii.

⁵³ Doudna and Sternberg, *A Crack in Creation*, xvi.

⁵⁴ For Hauskeller’s response to the “genetic lottery” argument, see Michael Hauskeller, ‘Levelling the Playing Field: On the Alleged Unfairness of the Genetic Lottery’, in Steve Clarke, Julian Savulescu, C. A. J. Coady, Alberto Giubilini, and Sagar Sanyal (eds), *The Ethics of Human*

The capacity of such exacting forms of technology to avoid affecting non-targeted genes and minimise unwanted side-effects entails that the more precise the editing of such genetic material, the more *direct*, and thus less autonomous, the moral bioenhancement of the individual will be. These complicating factors are further accentuated in embryonic genetic manipulation and germline modification, since these interventions bypass completely the autonomy of *future* individuals.⁵⁵ Even the most concerted attempts to target moral motivation, which, as we have seen, essentially involve the attempt to enhance *autonomy*, fail to accomplish what is demanded. The main obstacle, in my view, is that usually these attempts are directed at a notion of autonomy that reflects the philosophical tradition Henry Allison refers to as the ‘liberty of indifference’, which essentially consists in the freedom to choose between alternatives.⁵⁶ This notion of autonomy constitutes the basis of the various positions Schaefer, et al. consider in their treatment of the issue, despite their claim that their strategy adopts a neutral stance towards the concept of autonomy. Neutrality on the very definition of autonomy, however, cannot be had, especially when there exist concepts of autonomy directly opposed to that on which Schaefer, et al. establish their claims. One of these is Kant’s.

Even though Schaefer, et al. seem to suggest that their position may also accommodate a Kantian conception of autonomy (though the extent to which they think so is left rather ambiguous), I think the evidence for this is slim. They characterise Kant’s notion of autonomy as ‘an aspect of the will [that] does not just cause one to act, but is also itself uncaused; it moreover involves attending to substantive normative principles that give rise to reasons for action’.⁵⁷ They correctly point out that, on the Kantian scheme, ‘autonomous judgment amounts to attending to normative reasons, which in turn ground obligation’.⁵⁸ Understood in this way, however, it is not clear how autonomy may be enhanced via the enhancement of cognitive

Enhancement: Understanding the Debate (Oxford: Oxford University Press, 2016), 202–204.

⁵⁵ Dena Davis, ‘The Parental Investment Factor and the Child’s Right to an Open Future’, *The Hastings Centre Report* 39:2 (2009), 24–27, for example, has expressed this worry. Others, however, do not think this is a valid concern; see, for example, Schaefer, et al., ‘Autonomy and Enhancement’, 130.

⁵⁶ Henry E. Allison, ‘Morality and Freedom: Kant’s Reciprocity Thesis’, *The Philosophical Review* 95:3 (1986), 393–425, 400.

⁵⁷ Schaefer, et al., ‘Autonomy and Enhancement’, 124.

⁵⁸ Schaefer, et al., ‘Autonomy and Enhancement’, 124.

capacities, as suggested by Schaefer, et al., except in an extremely tenuous way. The problem is that the bioenhancement of cognitive capacities is achieved through natural causes. However, the *will*, on Kant's terms, is not a faculty that is determined by natural causes, i.e., natural laws. This, however, does not render the will completely undetermined by *any* laws. Rather, the will is governed by the *moral law* of reason, which the will *legislates to itself*. Kant asserts that

will is a kind of causality of living things insofar as they are rational, and *freedom* would be that property of such causality that it can be efficient independently of alien causes *determining* it. [...] Freedom, although it is not a property of the will in accordance with natural laws, is not for that reason lawless but must instead be a causality in accordance with immutable laws but of a special kind; for otherwise a free will would be an absurdity. [...] What, then, can freedom of the will be other than autonomy, that is, the will's property of being a law to itself?⁵⁹

On this conception of autonomy, it is difficult to see how the bioenhancement of an individual's cognitive or other capacities may be *transferred* to the individual's *will*, thereby enhancing its autonomy. On Kant's view, this transference cannot happen, not even by the most indirect and remote means. The reason is that the will is *free*, i.e., is able to act autonomously, precisely in so far as it is *not* affected by the efficient causality operative in nature; it operates only in accordance with the law of practical reason, i.e., the moral law, which the will legislates to itself. The autonomy of the will cannot be accessed via natural means either to augment or diminish it.

Savulescu and Persson seem to acknowledge that, on a non-reductive, incompatibilist view of free will, autonomy is immune to *direct* effects of moral bioenhancement.⁶⁰ They fail to recognise, however, that this conception of autonomy is also immune to effects of *indirect* moral bioenhancement, insofar as those means are *naturalistic*. No bioenhancement of any single capacity, or combination of capacities, could generate the kind of effect on the agent's moral motivation that a Kantian view of moral agency entails. Only reason, through its own practical laws, may motivate the will – though in varying degrees of strength. Thus, even though biological interventions could not

⁵⁹ Kant, *Groundwork of the Metaphysics of Morals*, 94–95 (AA 4: 446–447).

⁶⁰ This point receives extended treatment in Ingmar Persson and Julian Savulescu, 'Moral Bioenhancement, Freedom and Reason', *Neuroethics* 9:3 (2016), 263–268.

inhibit human autonomy, as Kaebnick and others have argued, there are no grounds for thinking that they could *enhance* it either.⁶¹ Given that the Kantian conception of autonomy is not equivalent to a mere cognitive capacity rooted in a purely neurological phenomenon, it withstands access via natural causes of any kind. Even the more moderate claim that autonomy may be bioenhanced *indirectly*, and as a by-product of the bioenhancement of a complex combination of cognitive capacities, turns out, on this view, to be unjustifiable. Moreover, while some type of compatibilist position might appear to obviate these consequences, it poses the equally weighty challenge of specifying a conception of autonomy robust enough to ground a genuine form of moral agency.

The objective of bioenhancing autonomy through the bioenhancement of cognitive capacities confronts difficulties analogous to those featured in certain theories of consciousness. The difficulty is explaining how conscious experience can arise from the mere combination of purely material, non-conscious elements. The claim that consciousness simply arises from the functional organisation or configuration of completely non-conscious material factors is conceived, by some, as an implausible and inexplicable *brute emergence*.⁶² I think the claim that the bioenhancement of moral autonomy could arise from the bioenhancement of cognitive capacities – which are claimed to be neither identical nor equivalent to autonomy – faces a similar problem. The bottom line is that this view requires us to accept some radical form of emergence of an enhanced autonomy from the enhancement of capacities that are merely cognitive in nature. I have no doubt that the enhancement of such capacities may very well increase an individual's general capacity to control their behaviour in some moral contexts, and perhaps considerably

⁶¹ For further discussion of Kantian autonomy, reductionism, and compatibilism in connection with moral bioenhancement see Gregory E. Kaebnick, 'Moral Enhancement, Enhancement, and Sentiment', in Steve Clarke, Julian Savulescu, C. A. J. Coady, Alberto Giubilini, and Sagar Sanyal (eds), *The Ethics of Human Enhancement: Understanding the Debate* (Oxford: Oxford University Press, 2016), 225–238, 228–230. See also Gregory E. Kaebnick, 'Behavioral Genetics and Moral Responsibility', in Erik Parens, Audrey R. Chapman, and Nancy Press (eds), *Wrestling With Behavioral Genetics: Science, Ethics, and Public Conversation* (Baltimore: Johns Hopkins University Press, 2006), 220–234.

⁶² David J. Chalmers, in *The Conscious Mind: In Search of a Fundamental Theory* (Oxford and New York: Oxford University Press, 1996), offers a comprehensive treatment of these issues in theories of consciousness.

so. I do not think, however, that this warrants referring to this kind of enhancement as an enhancement of their *autonomy* – at least not on any sense of autonomy that is substantive enough to ground an intelligible account of moral motivation. The kind of autonomy that is essential for moral motivation is neither reducible to, nor emergent from, merely cognitive capacities.

On Kant's non-reductionist and non-emergent account of moral agency, *will* is conceived of as 'a kind of causality belonging to rational beings, so far as they are rational'.⁶³ Kant's notion of *rationality* is construed as 'the capacity to form and act upon general principles'.⁶⁴ Kant calls such principles 'maxims', indicating an 'idea of law'. Allison aptly notes that 'a maxim has a purposeful component built into it', either explicitly or implicitly.⁶⁵ This purposeful component – some goal, end, or interest – may be either *pure* or *material*. It is pure when the motive of the agent is simply respect for the moral law itself. It is material when the motive of the agent is a sensuous desire for some object of volition. On these terms, the problem of *akrasia*, i.e., weakness of will, consists in the agent's interest in, and pursuit of, some material object. It does not consist in the will's being *determined by* material, i.e., natural, causes. In fact, it is precisely in its inability to be so determined that the will is *free*. Thus, even the phenomenon of *weakness of will* admits of a possible non-naturalistic account. On this view, it is not the *cause* of the will that is material in nature, but rather the *object* that the will chooses to pursue.⁶⁶ Thus, the will is still *free*, even when it is *akratic*; it is just not directing its freedom towards the pursuit of the appropriate object, and thus not operating in accordance with maximal autonomy, i.e., moral autonomy.

This account accommodates the view that autonomy admits of degrees, i.e., an agent may be more or less autonomous – as Schaefer, et al. also propose. On a Kantian notion of autonomy, however, what diminishes the degree of the agent's autonomy is not the effect of natural causes acting on it, such as sensuous desires, etc., but rather the *objects* that the will chooses to make the purposeful components of its maxims. The more appropriately the will chooses the objects of its maxims, the more autonomous it will be. In this framework, however, there does not appear to be any way in which autonomy may be bioenhanced – not even indirectly – through the

⁶³ Allison, *Morality and Freedom: Kant's Reciprocity Thesis*, 400.

⁶⁴ Allison, *Morality and Freedom: Kant's Reciprocity Thesis*, 401.

⁶⁵ Allison, *Morality and Freedom: Kant's Reciprocity Thesis*.

⁶⁶ Kant, *Critique of Practical Reason*, 185–188 (AA 5: 57–59).

bioenhancement of some fundamental cognitive capacities, since any form of bioenhancement involves natural causation, which is completely inefficacious on the will of rational agents.⁶⁷

6. Conclusion

On the analysis I have offered, even the most promising approaches to moral bioenhancement that have been proposed thus far do not, in the end, amount to anything that may properly be considered *moral* enhancement. On the increasingly popular view that moral motivation is central to genuine moral deliberation and agency, and that the autonomy of the moral agent is the fundamental condition for such motivation, enhancing autonomy becomes the ultimate goal in moral bioenhancement projects. In pursuit of this goal, however, both direct and indirect forms of moral bioenhancement seem unviable. The reason is that the various forms both these approaches may take do not affect the agent's autonomy in the relevant manner. Rather, they simply morph into mere punishment, or they amount to enhancement or treatment of a kind other than moral. Inadequate accounts of the biotechnological interventions examined throughout this chapter result in the misidentification of these procedures. As I have argued, such interventions would more accurately be described as either a) cognitive or psychological enhancement, or b) cognitive or psychological treatment – if, indeed, these may be adequately distinguished. In either case, and contrary to what some claim, the chances of mis-firing are, I think, extremely high.⁶⁸ More fundamentally, however, if moral agency requires a non-naturalistic type of moral autonomy, as Kant contends, such autonomy is not able to be influenced by naturalistic interventions of any kind. Thus proposals for the possibility of bioenhancing autonomy turn out to be unconvincing, for both metaphysical and empirical reasons.

⁶⁷ It should be noted that, on this view, even traditional forms of moral enhancement (for example, through moral education) are limited in their effect on the will, as others have also remarked.

⁶⁸ One further difficulty, not treated here, is that if genuine voluntary moral bioenhancement were possible, it would give rise to the problem of *free-riders*. The enhanced would be rendered more vulnerable to the actions of unenhanced individuals. Moreover, those individuals who would be most willing to undergo moral enhancement would not necessarily be those in greatest need of it.

Kantian Challenges

This misidentification problem is not merely a verbal dispute. Acknowledging these forms of intervention for what they are, as opposed to what they are not, urges us to exercise greater caution in their use. Conceiving of such interventions and advertising them as autonomy enhancing measures that facilitate moral agency may have the effect of enticing people to avail themselves of these procedures with unreasonable expectations. I conclude, therefore, that once we recognise the real target of moral bioenhancement, we also recognise that we are bound to miss it. This is not to say, however, that I think we should, for these reasons, refrain from any and all such interventions, and that it is inconceivable that they could genuinely “enhance” in some important respects the lives of numerous individuals, and even human society in general. I think they may very well do so, especially with the ever-increasing precision and scope in the advancements of science and technology. I contend, however, that we should refrain from conceiving of such interventions as forms of *moral* bioenhancement, at least until we have a more rational basis for doing so.

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