

Cognitive Enhancement, Virtue Ethics and the Good Life

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Abstract This article explores the respective roles that medical and technological cognitive enhancements, on the one hand, and the moral and epistemic virtues traditionally understood, on the other, can play in enabling us to lead the good life. It will be shown that neither the virtues nor cognitive enhancements (of the kind we have access to today or in the foreseeable future) on their own are likely to enable most people to lead the good life. While the moral and epistemic virtues quite plausibly are both necessary and sufficient for the good life in theory, virtue ethics is often criticised for being elitist and unachievable in practice for the vast majority. Some cognitive enhancements, on the other hand, might be necessary for the good life but are far from sufficient for such an existence. Here it will be proposed that a combination of virtue and some cognitive enhancements is preferable.

Keywords Virtue · Ethics · Aristotle · Cognitive · Enhancement · Moral virtue · Epistemic virtue · Neuro · The good life · *Eudaimonia*

Introduction

The merits and drawbacks of human enhancement are most frequently analysed from a consequentialist or a

deontological perspective. This article, however, takes a virtue ethics approach and explores what has so far been an underdeveloped theoretical perspective in this context. The central claim is that (some) cognitive enhancements are compatible with a virtue ethical conception of the good life. It will be shown that cognitive enhancement and virtue can co-exist comfortably and, further, that they in combination could form the necessary and sufficient conditions for a good life in certain cases. In addition, it will be argued that neuroenhancement, in some cases, could be a necessary pre-requisite for the habituation process as described in the *Nicomachean Ethics*. On this account, cognitive enhancement would not replace but facilitate virtue, something which is likely to make virtue ethics a more palatable theory to many modern scholars.

The claims to be advanced rest on the assumption that a virtuous life is the good life and, consequently, that those who manage to develop moral and epistemic virtues will, in general, fare better in life than those who do not. The premise that the virtuous life is the best life will not be defended here but it follows Aristotle's account of *eudaimonia* in the *Nicomachean Ethics* and the *Eudemian Ethics*.

Virtue ethics is often criticised for being elitist and overly demanding and, consequently, it is claimed that the virtuous life plausibly could prove unattainable.¹ Previously, such critique had to rely largely on

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¹ This type of criticism is predominately targeted at the traditional forms of virtue ethics.

speculative assumptions about the makings of a human character (broadly conceived). More recently, however, this line of argument has been receiving support from the behavioural sciences. Scientific findings indicate that most people are subject to substantial cognitive constraints. In general, humans are, for example, biased, poor at handling information and bad at deferring judgement.² Arguably, these and other similar constraints could stand between us and the good life.³ These findings threaten to cast serious doubts over a number of central assumptions in virtue ethics, as well as in other normative theories drawing on intuitions. The findings have been taken to show that the primary reasons most of us fail to develop the moral and epistemic virtues to the full are of a biological nature as opposed to insufficient moral motivation and training. On the virtue ethics account the epistemic/intellectual virtues (for example practical wisdom, intellect and scientific knowledge), and the moral/character virtues (for example courage, generosity and temperance) develop alongside one another. Although closely connected, they are not reducible to one another and we need to exercise all of them, albeit to various degrees, in order to lead the good life.

If becoming fully virtuous would prove unachievable as a direct result of biological shortcomings, it seems to follow that the vast majority of people would be unable to lead the good life for reasons beyond their control and through no fault of their own. This conclusion sits rather uncomfortably with modern ideas about fairness and equality and could threaten to undermine virtue ethics as a theory of the best and most fulfilled life.⁴ As will be shown here, however, this does not necessarily entail the abandonment of the idea of the virtuous life being the best conceivable life. If the cognitive constraints could be overcome, or sufficiently compensated for, the good life understood as the virtuous life could move from

being an unachievable dream to an achievable goal to many more.⁵

Some of these constraints can be overcome through medical or technical enhancement. With cognitive neuroenhancement, agents could be levelled up to a starting point from which they might find it very possible to embark on the habituation process (i.e. instilling the virtues as described by Aristotle). Notably, this is not an argument in favour of attempts to make people virtuous through enhancement alone. Rather, the central idea is that some cognitive neuroenhancements might enable a larger number of people to embark on the virtuous life.⁶ It is plausible that cognitive enhancement in combination with education in the virtues would assist agents in moving from a merely theoretical commitment to the virtuous life to a practical one.

Admittedly, other moral theories, for example utilitarianism, would presumably be able to defend a similar position but on different grounds. However, this article is not seeking to compare approaches—the qualities of virtue ethics as a normative approach are assumed and will not be argued for here. Rather, the purpose is to add something new to the debate by showing both how (i) many of the ethical challenges attaching to cognitive enhancement can be successfully handled within a virtue framework, and (ii) virtue and cognitive enhancement can be combined. It will be shown that the combination of the two, using cognitive enhancement to facilitate virtue, is more likely to enable the agent to lead a happy and fulfilled life than the rival theories. An increased capacity for instilling virtuous behaviour will permit the agent to, for example, go through the process of habituation and internalise the virtues more successfully. In addition to the direct advantages for the individual this might also generate additional positive effects on a societal level.

Details of the scientific findings, as well as some possible implications for virtue ethics are explored in [Is It Biologically Unachievable to Be Fully Virtuous?](#) of this article. [The Case for Cognitive Enhancement](#) presents some concrete enhancement examples. [Why Do We Need the Virtues?](#) defends the virtuous life as the best life, all things considered, but recognises that it might be an unattainable ideal for most people. In

² See e.g.; Greene and Haidt [15]; Haidt [17]; Wheatley and Haidt [52]; Kosfeld et al. [27]; Knoch et al. [26]; Kiesel et al. [25]; Brasil-Neto et al. [4]; Baumeister [1]; Beckham [2]; Tancredi [49]; Libet et al. [33]; Harman [20]; Doris [13].

³ For a discussion see e.g. Kahane and Shackel [24], 'Methodological Problems in the Neuroscience of Moral Judgment', forthcoming in *Mind and Language*; Levy [29]; Singer [44]; Weinberg et al. [51]

⁴ Naturally, one can still accept that it is the eudaimon life but that it might not be a possibility for most people, or indeed, anyone. This is further discussed in [Combining Cognitive Enhancements and Virtue](#).

⁵ Any such enhancements must of course be voluntary and safe.

⁶ Enhancement has been criticised on the grounds of threatening to erode effort, motivation and under-cut human agency in general, see e.g. Sandel [41]. I do not believe that the claim made here is vulnerable to such arguments.

addition, it is explained why neither cognitive enhancement nor virtue ethics is convincing enough on its own as a recipe for the good life.⁷ The section also addresses the plausibility of the claim that cognitive enhancement could be expected to lead to moral improvement. [Combining Cognitive Enhancements and Virtue](#) consists of a discussion on the merits of a combination of cognitive enhancement and a firm commitment to the virtues. In [Conclusion](#) it is concluded that a combination is more likely to enable people in general to lead the good life than either method on its own.

Is It Biologically Unachievable to Be Fully Virtuous?

To be virtuous in one's actions means to do the virtuous thing consistently, with pleasure and for the sake of virtue (i.e. not use the virtues as instruments). This is a tall order. Virtue ethics is generally considered a demanding moral theory and even Aristotle recognised that it might be an acquired taste. The virtuous life can appear very hard and it may take time to grasp that this is the best life available and, as such, the most rational choice. As a result, the quality of our upbringing and the society around us, as well as the laws, are key to the successful development of virtue. As Aristotle points out "It is difficult, however, for someone to be trained correctly for virtue from his youth if he has not been brought up under the correct laws; for the many, especially the young, do not find it pleasant to live in a temperate and resistant way. That is why laws must prescribe their upbringing and practices; for they will not find these things painful when they get used to them."⁸

The idea that such a process of habituation could be the making of good and reliable agents, and that virtue can be instilled through a combination of rationality, will, self-discipline and the threat of punishment has been subject to frequent critique. Such misgivings have led some scholars to reject the

whole virtue project described by Aristotle as largely unattainable, for example on the grounds that it is unrealistic and elitist. Virtue ethics has been said to fail to provide adequate action guiding for specific situations and to be unachievable because agents may not develop the kind of stable (moral) character traits required.⁹ If stable character traits turned out to be an illusion, matters would, arguably, look especially bleak for moral theories such as virtue ethics that are structured around the very idea that humans can, and indeed should, develop stable character traits that can guide their actions. In virtue ethics there is a strong emphasis on the capacity for deliberation, the ability to pick up on morally relevant features in a particular situation. Virtue ethics holds that the good life depends on a successful internalisation of the virtues and assumes that agents can both recognise virtue in others and, subsequently, seek to model themselves on these good examples. But how plausible is the idea that we can acquire virtues through habituation if humans are incapable of forming stable character traits? Further, if our moral decisions are the results of things like mood and practical circumstance then how could context awareness and situation sensitivity matter in an interesting way? Another line of critique is that virtue ethics is too exclusive in the sense that the good life seems to depend on a substantial amount of luck. Consider the description of the moral agent in *The Nicomachean Ethics*. Aristotle outlines a very narrowly defined type of person and from his account it seems to follow that in order to develop the virtues one has to be, for example; male, free, from a good family, relatively intelligent and possibly wealthy. Moreover, it is far from clear that even those who match this specific profile would be able to develop all the epistemic and moral capacities and become fully virtuous.¹⁰ If these assertions are correct, it would of course greatly undermine the appeal of virtue ethics. It would be at least difficult and at worst impossible to follow Aristotle in insisting that it is the best way to live for all humans.¹¹ Interestingly, recent scientific results

⁷ Throughout the article I will use cognitive enhancements to mean the type of medical and technological enhancements we have access to today or, might have, in the foreseeable future. I am open to the idea that there could be a technological leap such that some of the arguments put forward here would no longer hold.

⁸ /NE1179b32-37/

⁹ Harman [20]; Doris [13]; Darley and Batson [12]. For a discussion and possible responses, see e.g. Hutchinson on *hexis* [22]; Nussbaum [36]; Hursthouse [21]; MacIntyre [34]; Haidt [18]; Crisp and Slote [11]; Harman [20].

¹⁰ Crisp [10]

¹¹ Some of these concerns will be further discussed in [The Case for Cognitive Enhancement](#) below.

may have furnished these critics with new arguments. If correct, the results briefly described below indicate that it is not all about effort but, rather, that to fully internalise the virtues is beyond the biological capacity of many people.

The advances in the natural sciences yield ever increasing knowledge about the biological functioning of both animals and humans. The news is not always positive from the point of view of moral philosophy. Numerous studies have called the stability of our judgments into question by showing that they might be manipulated through hypnosis,¹² hormones,¹³ and transcranial magnetic stimulation.¹⁴ Further, our choices are affected by priming¹⁵ and transcranial magnetic stimulation¹⁶ and self-control can be impaired by brain dysfunction.¹⁷

Other studies have identified yet more cognitive constraints. Researchers suggest that humans in general do not respond well to information, and as a result tend to acquire false beliefs. Having a tendency to leap to judgement means, among other things, that we also tend to trust unreliable information sources and distrust reliable ones. An example of a bad decision as a result of misplaced trust would be the thousands of parents who decided not to subject their children to the combined measles, mumps and rubella (MMR) vaccine because they feared that the vaccine was linked to autism. Another example of, potentially, misplaced trust is that we are much less adept at telling when a spouse or a close friend are lying to us than when a stranger does. Our bias towards believing people close to us can partially be explained by the fact that close relationships depends on trust, so being overly suspicious might well conflict with the ability to create and maintain such bonds.

A long-standing debate that has received new fuel from the natural sciences pertains to the foundations, and the role, of moral intuitions. Consider, for example, the field of neuroscience where researchers, assisted by fMRI imaging and other technologies, seek to map various types of brain activity. Of particular relevance for this article are the experiments that seek to study which parts of the brain that are

actively involved when we face morally difficult decisions. One of the first studies examining the role and nature of moral intuitions in decision-making was published in 2001 by Joshua Green et al.¹⁸

In designing the experiments, Green's team developed a series of example situations, mainly versions of trolley cases, and then asked the enlisted research subjects to make morally hard choices. Notably, they intended to measure the kinds of intuitions that lie behind decision making in such cases (as opposed to seeking 'the right answer'). With the help of fMRI technology, it was possible to screen the brains of the subjects and see which parts were involved, and to what extent, when they tried to decide on the right action. Based on such experiments, Greene has drawn some fairly controversial conclusions about moral psychology and the role and nature of intuitions. For example, "...characteristically deontological moral judgments (judgments associated with concerns for "rights" and "duties") are driven by automatic emotional responses, while characteristically utilitarian or consequentialist moral judgments (judgments aimed at promoting the "greater good") are driven by more controlled cognitive processes."¹⁹ Green, who has since conducted further studies, calls this analysis the 'dual process model'. Broadly speaking, Greene contends that these studies show that the best explanation for human behaviour is evolutionary pressure, and further, that moral intuitions are largely products of various cognitive biases. Such arguments are commonly referred to as Evolutionary Debunking Arguments (EDAs) and stipulate that intuitions are similar to gut-feelings or emotional aversions produced by evolution, which makes them unsuitable as moral guides.²⁰ If this is correct, it would indeed be hard to maintain that our moral intuitions should be considered truth-tracking in a morally interesting way.²¹ While the claim that emotions play a key role in moral decision-making is far from a novel idea, the Greene study caused a massive debate. It inspired a great many researchers from various fields to study

¹⁸ Greene et al. [16].

¹⁹ Quote from Greene's website <http://www.wjh.harvard.edu/~jgreene/>. The study is Greene et al. [16].

²⁰ As discussed by Gilbert Harman in, for example, Harman [19]. For a discussion on the strengths and weaknesses of EDAs, see e.g. Kahane and Shackel [24], 'Methodological Problems in the Neuroscience of Moral Judgment', forthcoming in *Mind and Language*

²¹ Greene and Haidt [15]; Haidt [17]

¹² Wheatley and Haidt [52]

¹³ Kosfeld et al. [27]

¹⁴ Knoch et al. [26]

¹⁵ Kiesel et al. [25]

¹⁶ Brasil-Neto et al. [4]

¹⁷ Beckham [2]

moral dilemmas and the way agents reason and make decisions about them.²²

Some of the farther reaching conclusions aside, it seems reasonable to assume that these cognitive shortcomings hamper our general understanding of the world. They make us less able to make sense of things, to explain, to reason and to draw conclusions which, in turn, will have consequences for our capacity for moral reason. At the very least they would have a negative impact on our ability to act in accordance with our intuitions. While many of these scientific findings can make important contributions to explaining, and in some cases predicting, human behaviour, it is still early days in the field of brain studies. Furthermore, in addition to expanding our scientific knowledge, much more research is needed in order to determine the balance and interaction between biological and environmental factors in shaping our behaviour. While it seems uncontroversial that there is a connection between our biology and our capacity to make moral judgements, exactly what it looks like and the possible implications for ethics require further study. Despite the many unanswered questions, however, this type of scientific research has been taken to show that we are less rational—and arguably then less morally responsible—than we like to think.²³ The next sections will explore the implications for virtue ethics if many of these claims turn out to be correct.

The Case for Cognitive Enhancement

If most people are bad at acquiring true beliefs and prone to various cognitive biases as a result of their very nature, it does not seem entirely plausible that they would be able to instil the virtues. Yet, failing to do so would mean that they—no fault of their own—would be disqualified from leading a fulfilled and good life. Faced with this gloomy prospect, one could be forgiven for thinking that it would be a positive thing if, courtesy of medicines or hormones for example, we became more inclined to behave in

ways that would make our lives go better.²⁴ The advantages and disadvantages of biological manipulations and various other forms of enhancements have been discussed at length by philosophers.²⁵ While most of these authors do not tend to couch the potential benefits of biological manipulation in virtue terms, it is not unlikely that even traditional virtue ethicists might take comfort in the prospect of human cognitive enhancement as a means to overcome the biological challenges that stand between us and the good life.

For concreteness, consider some of the studies that in recent years have been conducted on prairie voles and what the implications for human cognitive enhancements could be. The studies claim (to varying degrees) to have found the neurological explanations for monogamy in mammals such as voles and, moreover, that these results can be used to explain human love and our tendency towards monogamy.²⁶

Wang et al. [55] set out to investigate the hypothesis that long term bonding between adult mammals had the same hormonal explanation as the formation of deep emotional connections between mothers and their children. The emotions between mother and babies are driven by the hormone oxytocin which is released in the female brain during labour and nursing. The researchers showed that they could affect the behaviour of typically monogamous female prairie voles by modifying the levels of oxytocin. An increase in hormone levels led the prairie voles to become more attached to their partners and a reduction (via blocking receptors) made them more promiscuous. The male prairie vole displayed similar behaviour although in males it is another hormone, vasopressin (which is closely related to oxytocin), that does the work. It turned out that an

²² For some examples, see Kahane and Shackel [24], 'Methodological Problems in the Neuroscience of Moral Judgment', forthcoming in *Mind and Language*; Singer [44]; Liao [31]; Sturgeon [48]; Street [47]; Levy [28]; Levy [30]; Tersman [50]

²³ Tancredi [49]

²⁴ Current examples of healthy people using prescription drugs in order to enhance their performance are Ritalin (developed to treat ADHD); Ampakines or cholinesterase inhibitors (drugs developed to counter cognitive degeneration in Alzheimer patients); and modafinil-based substances developed to treat excessive need for sleep). For a comment see e.g. Sahakian and Morein-Zamir [40]

²⁵ See e.g. Bostrom and Sandberg [3] 'Cognitive Enhancement: Methods, Ethics, Regulatory Challenges', forthcoming in *Science and Engineering Ethics*; Roache and Liao [39]; Savulescu and Bostrom [43]; Liao et al. [32]; Sahakian and Morein-Zamir [40]; Catterjee [8]

²⁶ Nair and Young [35]; Cho et al. [9]; Insel and Hulihan [23]; Williams et al. [53]; Winslow et al. [54]

increase or decrease affected the male's levels of bonding, its tendency to act aggressively towards potential rivals and its paternal instincts. Notably, however, increasing vasopressin levels in male voles also resulted in them becoming more possessive and aggressive.

Research shows that some hormones work through the reward and reinforcement system, driven by the neurotransmitter dopamine, i.e. the body's own reward system. High levels of dopamine in the brain create euphoria and addiction in humans (ref. drug use) and the same type of response has been observed in other animals. Young et al. found a genetic component to bonding: "...different forms of the *AVPR1A* gene are associated with variations in pair bonding and relationship quality. A recent study indicates that men with a particular *AVPR1A* variant are twice as likely as men without it to remain unmarried, or when married, twice as likely to report a recent crisis in their marriage. Spouses of men with the variant also express more dissatisfaction in their relationships than do those of men lacking it. For both voles and humans, *AVPR1A* genetic polymorphisms predict how much vasopressin receptor is expressed in the brain."²⁷

These and various similar findings have prompted speculations about 'love drugs' and other types of enhancements which could boost love and attachment in relationships. It is hypothesised that medicine could help improve our relationships in a whole new way. Indeed, there are already plenty of examples of products on the market which claim therapeutic effects in humans.²⁸

Philosophers Julian Savulescu and Anders Sandberg have defended the idea that, since studies show that long term stable love relationships increase our overall well-being (both on an individual and a social level), it would be desirable to improve our capacity for forming such bonds with the help of neuroenhancement. "Love is one of the fundamental aspects of human existence. It is to a large part biologically determined. We should use our grow-

ing knowledge of the neuroscience of love to enhance the quality of love by biological manipulation".²⁹ Savulescu and Sandberg hold that various forms of neurological enhancements might improve the human capacity to form lasting relationships and, that such a heightened capacity would be conducive to the overall wellbeing of agents.

Even if the scientific claims described in the previous two sections are accepted, it is, however, far from clear that the good life for humans could best be secured through cognitive enhancement alone.³⁰ For one thing, it is often said that there is little reason to believe that improving an agent's cognitive capacity also would be conducive to her moral goodness. Indeed, one could easily imagine clever but very wicked individuals who use their capacities to secure advantages at the expense of others. As pointed out in, for example, 'From Chance to Choice', the moral virtues would be required to guide our choices and actions, perhaps especially so if we employ cognitive enhancements.³¹ Moreover, a lack of moral and epistemic virtues would greatly impede our ability to judge which type of enhancements would most likely improve the quality of life.

While recognising such concerns there are, however, convincing arguments speaking in favour of such a connection. Firstly, virtue ethics stipulates there is an intimate link between virtue and rationality.³² Indeed, to be vicious is to be irrational as such agents subscribe to mistaken beliefs about the good life. This causes them to take pleasure in the wrong things, for the wrong reasons and to the wrong extent etc. and as a result they are left unable to function at the top of their capacity. Briefly put, their wicked ways means they cannot flourish. Assuming that increased and/or new cognitive capacities would enable us to make (more) objective judgments and overcome various bias it would be surprising if this did not trigger an even more profound understanding of, and consequently commitment to, the virtuous life. Accepting this, it could also facilitate the habituation process. As cognitive ability would improve, we could become more sensitive to the relevant moral

²⁷ Young et al. [55].

²⁸ For example; the 'Enhanced Liquid Trust', a cologne-like mixture of oxytocin and pheromones said to be "designed to boost the dating and relationship area of your life"; in Australia, clinical studies are underway to determine whether an oxytocin spray might aid traditional marital therapy. <http://www.verolabs.com/>

²⁹ Savulescu and Sandberg [42].

³⁰ I do not wish to imply that Savulescu and Sandberg would claim that it could.

³¹ Here I am thinking especially about the example of 'vicious Cynthia', see Buchanan et al. [7]

³² See e.g. Nussbaum [37]; Nussbaum [36]

features in various situations; better at deliberating; less tempted by the wrong things and so on.

In the next section it will be shown why deciding to live life in accordance with the virtues represents a more attractive life strategy for agents interested in happiness. The argument for this claim is twofold. Firstly, it will be explained that the virtues are more likely to provide the kind of flexible capacity that agents require to excel at deliberation and decision-making, and further, that the process of habituation is both intrinsically and instrumentally valuable. Secondly, the virtues add extra dimensions to the good life which are unlikely to be available through increased hormone levels or technical enhancements. Currently, there is little evidence that through various enhancement methods we would be able to mimic the rich and complex experiences that an agent gains while learning to understand the demands of the virtues and how to act accordingly.

Why Do We Need the Virtues?

It seems plausible that cognitive enhancement could make an important contribution by helping to lift agents to a starting point where they would have a reasonable chance at instilling the virtues. To grant it the status of an alternative strategy for the good life, however, would be a mistake. Two arguments support this claim. The first argument focuses on the epistemic and moral capacities that the agent develops, while the second argument is concerned with the intrinsic value of the process itself.³³

Firstly, it is likely that the capacities the agent ends up with through piece-meal enhancements are not on par with the overall situation sensitivity and capacity for skilful deliberation which is achieved by instilling the virtues. Being virtuous means being sensitive to contexts and situations in a very fine-tuned way. It involves a substantial element of sound judgment as well as properly directed sentiments, and it allows the agent to be highly discriminating when she exercises the virtues and responds to situations. The virtues transform the

agent into a stable and reliable decision maker who knows what to do in the ‘all things considered’ sense. This, in turn, enables her to be flexible and thus well equipped to face the changing reality and ever-increasing flow of information in society. Capacities like sound judgement and situation sensitivity are also likely to continuously re-enforce the agent’s own commitment to virtue, thus minimising the development of enhanced but immoral agents. Moreover, such abilities will be helpful when evaluating the potential goodness of emerging enhancement technologies.

By choosing the virtuous life, the agent would not only be better off from an all-things-considered aspect, but also with regards to the development of the individual virtues. In other words, she would be good both at getting the information right and at making the decisions. Of special interest here might be epistemic virtues such as open-mindedness, intellectual autonomy, intellectual honesty, conscientiousness and impartiality.³⁴ Indeed, in being virtuous the agent will be better both at concrete decision making and knowing when, what kind and to whom epistemic deference would be appropriate.³⁵ In light of the medical and technological knowledge we have today, it appears improbable that cognitive enhancements would be able to rival both this general sense of equity and the individual virtues. Another aspect, although not to be explored here, is that agents who habitually act virtuously could (as a beneficial side-effect) be likely to bring about a society where the institutions subscribe to a set of institutional virtues, for example transparency.³⁶

Secondly, cognitive enhancements are unlikely to mimic all the worthwhile aspects of the virtuous life. Consider, for example, the intrinsically valuable process of habituation that agents are expected to undertake. What matters are not only the capacities the agent hopefully manages to develop at the end of the process, but also the experience of acquiring and exercising the virtues. One of the most central features of virtue ethics is that doing the virtuous thing is leading the good life. In other words, the

³³ I am acknowledging that forms of very advanced conative (emotional) enhancement potentially might achieve both the same results and mimic the experience of habituation. For space reasons, this paper cannot deal with conative enhancement as a separate issue but for an interesting argument, see e.g. Douglas [14]; Persson and Savulescu [38]

³⁴ See work by virtue-responsibilists like Linda Zagzebski and James Montmarquet for example

³⁵ Here I am following the Aristotelian account in assuming some version of cognitivism—i.e. that the virtuous person is the one who knows what is right and wrong.

³⁶ For some interesting ideas on Social Moral Epistemology, see e.g. Buchanan [5]; Buchanan [6]

actual process is valuable in itself; it is a key part of *eudaimonia* also as the agent goes through it.³⁷ That said, the nature of the relationship between the virtues and *eudaimonia* has been subject to a heated debate. While the current format does not permit for a full account of the various arguments a short comment about the position subscribed to in this article might be called for. Very generally, the root of the problem is that Aristotle talks about the virtues as choice-worthy both for their own sake and as means to the fulfilled life.³⁸ This has caused concerns that the virtues would become instrumental and that the agent would choose them as a quick way, or a technique, to secure the happy life. Such behaviour would clearly not qualify as virtuous, nor be likely to bring about a fulfilled life. However, scholars like Sorabji and Hughes have convincingly argued that there is no necessary conflict. The idea is that the agent is grasping the constituent ends through the means, e. g. we choose the courageous act both for the sake of acting courageously and for the sake of being a courageous person.³⁹ Consequently, there is a little mean and a lot of end in all the virtues and then doing the virtuous is the good. So, while it is recognized that the ultimate rational for our actions is *eudaimonia* it is only through the virtues we can reach it because when we act in the right way we are leading the happy life.⁴⁰ Further to this, deliberation means thinking both about the particular action and about what a happy life involves.

The virtuous life is said to ‘lack nothing’ but the reasons for it being the best choice encompass more than pleasure and feelings of well-being. Although it is said to be the most pleasurable life, the motivation and commitment is not based on a wish to maximise pleasure. Virtue ethics recognises that a good life is a mixed bag of experience; a human life will in all likelihood involve anger, loss, failure, rejection, pain and disappointment but also offer pleasure, warmth, joy

³⁷ For an account of the temporal aspects of different virtues and personal goods, i.e. the idea that certain virtues are good for us at certain points in our lives (for example, that innocence and trustiness is good for children but less so for adults), see Slote [45]. Note, however, that Slote does not claim that all virtues are ‘relative’ in this sense.

³⁸ See e.g. NE Books 3 and 6

³⁹ Sorabji [46], p. 203.

⁴⁰ *Eudaimonia* is the best life for any human, about this we have no choice because it is a result of our nature see e.g./ NE1111b28-30/.

and success. Very generally speaking it could be said that there is an emphasis on process, not simply on outcomes, and that the good life on this definition accommodates many different types of experiences. Many enhancement strategies for the good life, on the other hand, seem to assume a rather narrow idea of what wellbeing and a good life is. The problem is not so much a potentially exaggerated focus on happiness (if anything, to strive to be happy seems a fine and noble goal) but rather the one-dimensional understanding of what type of experiences make up a happy life. To regard happiness as short-hand for ‘a long string of pleasant experiences’ would be very limiting, not in the least as it would exclude a large part of the interaction that goes on between humans. The understanding of wellbeing that virtue ethics subscribes to, however, is a richer and more complex concept and, thus, better at capturing what we mean when we think of a good life.

As has been shown above there are aspects of the good life, including capacities, that agents can achieve only, or in fuller and more complete way, through committing to virtue ethics. Further to that, such a commitment is both an on-going and a life-long process, which makes it hard to see how it could be replaced even by *a series* of one-off enhancements. Consequently, agents who choose cognitive enhancement on its own would be highly likely to miss out on key aspects of the good life and as a result come to jeopardise their own flourishing. Such a life strategy would then be, arguably, not only inferior but actually irrational. But even if the virtuous life is superior, all things considered, the scientific research presented in [Is It Biologically Unachievable to Be Fully Virtuous?](#) raises question marks with regards to the actual living of such a good life. While virtue may be excellent in theory, it could, as a consequence of our various cognitive constraints, be (almost) unattainable in practice for most people.

Combining Cognitive Enhancements and Virtue

So far it has been argued that neither cognitive enhancement nor virtue ethics is convincing enough on its own as a recipe for the good life for most people. The main problem with virtue ethics is that it appears nearly impossible to lead a fully virtuous and good life. So while the virtues are conducive to good moral behaviour, it is far from obvious that most people would be able to develop these unconditional dispositions to

act, feel and generally respond in ways typical of the good person. It is, of course, perfectly possible to accept the claim that the fully virtuous life is the best and most fulfilled life and at the same time accept that it might be unachievable for most people, or indeed for everyone. Even in light of such misgivings, however, it does not follow that the idea of the virtuous life being the best conceivable life needs to be abandoned. A genuine commitment to virtue as the superior choice does not, on its own, provide reasons to think that the virtuous life would have to exclude cognitive enhancements. To the contrary, it is likely that some cognitive enhancements will prove conducive to the good life and could enable a larger number of people to embark on the virtuous path.

It is often assumed that a virtue ethics approach to the good life would be incompatible with human cognitive enhancements and that virtue ethics and human enhancement champion two deeply conflicting ideas.⁴¹ This appears to be a mistake. Quite to the contrary, it seems that some cognitive enhancements might not only be seen as neutral from a virtue perspective but indeed as facilitating, for example, the habituation process. Notably this is not an attempt to construct an argument for cognitive enhancements *per se*, but rather to explore the best strategy for a happy life, all things considered.

As explained previously, critics of virtue ethics who claim, for example, that the theory is unachievable and unrealistic, have received support from findings in the natural sciences. The results indicate that most people suffer an array of cognitive constraints that could stand in the way of them developing the virtues and leading the good life. In general, humans respond to information ineffectively, which, in turn, is likely to lead them to acquire false beliefs. For example, being bad at deferring judgement means that we do not distinguish well between unreliable information sources and reliable ones. Furthermore, we are afflicted by numerous cognitive biases and have low impulse control. Such findings threaten to cast serious doubts on a number of central themes in virtue ethics. Perhaps not unexpectedly, however, our expanding technological and medical knowledge might also provide solutions to these problems in the form of useful cognitive enhancements for humans.

⁴¹ See, for example, bio-conservatives like Francis Fukuyama, Leon Kass and George Sandel.

Very briefly, the idea is that cognitive enhancements might help us to overcome a number of biological constraints that threaten to block the development of the virtues. As previously mentioned cognitive enhancements could lift agents to a starting point from which embarking on the habituation process is a real possibility. In other words; neuroenhancers could enable more people to become virtuous. This would level the playing field and it ties in well with wide-spread intuitions about fairness and equality. In addition to making virtue more attractive as a moral theory, such a combination might also strengthen it by making the good life more achievable and less dependent on luck, which, in turn, fits very well with the central virtue ethics idea that agents are responsible for their morality, or lack thereof.

When discussing enhancement it is common to differentiate between therapeutic use, on the one hand, and use for gaining competitive advantage over one's peers on the other. The debate is extremely infected and strong objections (for example on grounds of fairness, equality, potential social harm and potential risk) have been raised against the idea of boosting what is considered a normal capacity. Without getting entrenched in the ethical minefield that attaches to the topic, it should be noted that I do not wish to argue that all attempts to gain competitive advantage would be morally flawed. Moreover, even if we were to extend the practice to include individuals who already possess normal cognitive capacities, the competitive advantage they would gain would only be over themselves. What they might overcome would be their *own* biological constraints—after all our own biological make-up is our worst enemy in the quest for the good life. Acquiring the virtues is intrinsically valuable, as doing the fine and noble *is* leading the happy and good life and, evidently, for one person to live the good life is not in conflict with everyone else also leading the good life. The moral and epistemic virtues can hardly be described as goods which are available only in limited supply.⁴² Quite to the contrary, as pointed out by Aristotle, it is presumably much easier to learn and maintain virtuous behaviour in a virtuous society.⁴³

Some virtue ethicists might fear that using cognitive enhancements in this way would distort people's

⁴² And consequently be much less likely to lead to the bad result that many fear human enhancement will do e.g. risk taking, positional advantages.

⁴³ See e.g. Aristotle's *Politics* and *NE Book 5.7*

moral development but I believe this to be unfounded. The position defended here is certainly not that cognitive enhancements of the kind we have access to today or might have in the foreseeable future could or should take the place of, for example, the habituation process. While enhancement will not be a substitute, it may well work as a facilitator, contributing to making virtue ethics a more convincing theory to many modern scholars. If we accept that those individuals who manage to develop moral and epistemic virtues will, in general, fare better in life than those who do not, it seems reasonable to follow Aristotle both in recommending the virtuous life to others and to seek to lead it ourselves. Indeed, it could even be argued that anyone who takes the virtue project seriously should be prepared to explore this combination further.

Another aspect which merits consideration is that the epistemic and moral virtues will be increasingly important as we further explore enhancement. That will increase the likelihood for such pursuits being undertaken responsibly as agents will improve their sound judgement and their capacity to discriminate effectively. Hopefully this could create a platform for responsible—virtuous—enhancement where various techniques are evaluated on the basis of how well they contribute to the leading of the good life. Key aspects would of course be safety, voluntariness, autonomy and informed consent, fairness and transparency.

Savulescu and Sandberg observe that “Trends in divorce, as well as findings in evolutionary psychology, suggest that love might need a helping hand”. While this might well be true, that helping hand is most likely to come in the shape of a combination of cognitive enhancement and the epistemic and moral virtues traditionally understood.

Conclusion

Recent scientific findings have shown that most human beings are subject to numerous kinds of cognitive constraints that, presumably, stand between them and the good life. It seems to follow that the virtuous life is unattainable for most people and, further, that this is a direct consequence of their imperfect biology.

The central thesis of this article is that cognitive enhancements and a firm commitment to virtue

ethics as a strategy for the good life are not necessarily incompatible. It has been argued that if these cognitive shortcomings could be compensated for, or balanced, through the use of safe and voluntary enhancement techniques, then it would be morally desirable to do so. Indeed, it could well be the case that a combination of cognitive enhancement and virtue could make virtue ethics more convincing and rebut much of the standard criticism. Notably the article views cognitive enhancements as facilitators, not replacements, for virtue and as such they might well heighten rather than corrupt the agent’s situation sensitivity and the intrinsically valuable process of habituation. Consequently, this could be a very good example of how to use enhancement technology virtuously. Agents would still have to engage actively, to exercise the virtues willingly and with pleasure for the sake of virtue. Enhancements, could life agents up to a starting point from which embarking on the habituation process is actually a real possibility. This would level the playing field and it ties in well with wide spread intuitions about fairness and equality. Exactly which cognitive enhancements would be most suitable or how to best strike a balance between the two theories in practice are, although extremely important, largely empirical issues and have not been discussed here.

In the *Nicomachean Ethics*, Aristotle repeatedly wrote that by leading the life he described ‘a lot of people could be happy’. “Moreover [if happiness comes in this way] it will be widely shared; for anyone who is not deformed [in his capacity] for virtue will be able to achieve happiness through some sort of learning and attention.”/NE 1099b18-b21/. If the criterion for happiness is complete virtue and the scientific findings described in this article are correct, that is, that most people could well suffer from such ‘deformities’, then it is very hard to see how Aristotle’s optimistic prediction could be correct. Yet, if the virtuous life is the most fulfilled, satisfying and rewarding life any human can lead, it appears reasonable to want the many, as opposed to very few or indeed no one, to have that life. It is hoped that the combination between cognitive enhancement and virtue sketched in this article could assist agents in moving from a merely theoretical commitment to the virtuous life to a practical one.

References

1. Baumeister. 2002. Yielding to temptation. *Journal of Consumer Research* 28: 670–6.
2. Beckham. 2004. Crime, Culpability, and the Adolescent Brain'. *Science* 305/5684: 596–9.
3. Bostrom, and Sandberg. (2009). Cognitive enhancement: methods, ethics, regulatory challenges. forthcoming in *Science and Engineering Ethics*.
4. Brasil-Neto, et al. 1992. Focal transcranial magnetic stimulation and response bias in a forced-choice task. *Journal of Neurology, Neurosurgery and Psychiatry* 55: 964–6.
5. Buchanan. 2007. Institutions, beliefs and ethics: Eugenics as a case study. *Journal of Political Philosophy* 15/1: 22–45.
6. Buchanan. 2009. Philosophy and public policy: a role for social moral epistemology. *Journal of Applied Philosophy* 26(3): 276–290.
7. Buchanan, Brock, Daniels, and Wikler. 2000. *From chance to choice. Genetics and justice*. UK: CUP.
8. Catterjee. 2007. Cosmetic neurology and cosmetic surgery: parallels, predictions and challenges. *Quarterly of Healthcare Ethics* 16: 129–137.
9. Cho, M.M., A.C. DeVries, J.R. Williams, and C.S. Carter. 1999. The effects of oxytocin and vasopressin on partner preferences in male and female prairie voles (Microtus ochrogaster). *Behavioral Neuroscience* 113(5): 1071–1079.
10. Crisp. 2006. Aristotle on greatness of soul. In *Blackwell companion to the nicomachean ethics*, ed. R. Kraut. UK: Blackwell.
11. Crisp, R., and M. Slote (eds.). 1997. *Virtue ethics*. UK: OUP.
12. Darley, and Batson. 1973. "From Jerusalem to Jericho": a study of situational and dispositional variables in helping behavior. *JPS* 27: 100–108.
13. Doris. 2002. *Lack of character*. Cambridge: CUP.
14. Douglas. (2008). Moral enhancement. *Journal of Applied Philosophy* 25(3).
15. Greene, and Haidt. 2002. How (and Where) does moral judgment work? *Trends in Cognitive Sciences* 6: 517–23.
16. Greene, J.D., R.B. Sommerville, L.E. Nystrom, J.M. Darley, and J.D. Cohen. 2001. An fMRI investigation of emotional engagement in moral Judgment. *Science* 293: 2105–2108.
17. Haidt. 2001. The emotional dog and its rational tail: a social intuitionist approach to moral judgment. *Psychic Review* 108: 814–834.
18. Haidt. 2004. Intuitive ethics; how innately prepared intuitions generate culturally variable virtues. *Daedalus* 133(4): 55.
19. Harman. 1977. *The nature of morality*. New York: Oxford University Press.
20. Harman. 1999. Moral philosophy meets social psychology: virtue ethics and the fundamental attribution error. *Proceedings of the Aristotelian Society* 99: 315–331.
21. Hursthouse. 1991. Virtue theory and abortion. *Philosophy and Public Affairs* 20(3): 223–246.
22. Hutchinson. 1986. *The virtues of Aristotle*. London: Routledge & Kegan Paul.
23. Insel, T.R., and T.J. Hulihan. 1995. A gender-specific mechanism for pair bonding-oxytocin and partner preference formation in monogamous voles. *Behavioral Neuroscience* 109(4): 782–789.
24. Kahane and Shackel. (2010). Methodological problems in the neuroscience of moral judgment. forthcoming in *Mind and Language*.
25. Kiesel, et al. 2007. Unconscious priming according to Multiple S-R Rules. *Cognition* 104/1: 89–105.
26. Knoch, et al. 2009. Diminishing reciprocal fairness by disrupting the right prefrontal cortex. *Science* 314/5800: 829–32.
27. Kosfeld, et al. 2005. Oxytocin increases trust in humans. *Nature* 435: 2.
28. Levy. 2006. Cognitive scientific challenges to morality. *Philosophical Psychology* 19: 567–587.
29. Levy. 2007. *Neuroethics; challenges for the 21st century*. UK: CUP.
30. Levy. (2008). Empirically informed moral theory: a sketch of the landscape. *Ethical Theory and Moral Practice* (2009) 12: 3–8.
31. Liao. (2007). A defense of intuitions. *Philosophical Studies* 140(2) 2008: 247–262.
32. Liao, S. M., J. Savulescu, and D. Wasserman. (eds.) (2008). Special Issue: The Ethics of Enhancement. *Journal of Applied Philosophy* 25(3): 159–261.
33. Libet, et al. (eds.). 1999. *The volitional brain*. Charlottesville: Imprint Academic.
34. MacIntyre. 1981. *After virtue; a study in moral theory*. USA: University of Notre Dame Press.
35. Nair, H.P., and L.J. Young. 2006. Vasopressin and pair-bond formation: genes to brain to behavior. *Physiology* 21: 146–152.
36. Nussbaum. 1986. *The fragility of goodness: luck and ethics in greek tragedy and philosophy*. UK: CUP.
37. Nussbaum. (1990). *Love's knowledge*. OUP.
38. Persson, and Savulescu. (2008). The perils of cognitive enhancement and the urgent imperative to enhance the moral character of humanity. *Journal of Applied Philosophy* 25(3).
39. Roache, & Liao. (2009). 'After Prozac', forthcoming In *Enhancing human capabilities*. eds. J. Savulescu, R. ter Muelen, and G. Kahane, Oxford: Wiley-Blackwell.
40. Sahakian, and Morein-Zamir. 2007. Professor's little helper. *Nature* 450: 1157–1159.
41. Sandel. 2007. *The case against perfection*. Cambridge: Harvard University Press.
42. Savulescu, and Sandberg. 2008. Neuroenhancement of love and marriage: the chemicals between us. *Neuroethics* 1: 31–44.
43. Savulescu, J., and N. Bostrom (eds.). 2009. *Human enhancement*. Oxford: Oxford University Press.
44. Singer. 2005. Ethics and intuition. *The Journal of Ethics* 9: 331–352.
45. Slote. 1983. *Goods and virtues*. New York: Clarendon.
46. Sorabji. (1973–74). Aristotle on the role of intellect in virtue. In *Essays on Aristotle's ethics*, ed. A. O. Rorty, 1980. University of California Press.
47. Street. (2006). A Darwinian dilemma for realist theories of value. *Philosophical Studies* 127.
48. Sturgeon. 1992. Non-moral explanations. *Philosophical Perspectives* 6: 99–117.
49. Tancredi. 2005. *Hardwired behavior*. New York: CUP.

50. Tersman. 2008. The reliability of moral intuitions: a challenge from neuroscience. *Australasian Journal of Philosophy* 86(3): 389–405.
51. Weinberg, Nichols, and Stich. 2001. Normativity and epistemic intuitions. *Philosophical Topics* 29: 429–460.
52. Wheatley, and Haidt. 2005. Hypnotic disgust makes moral judgments more severe. *Psych Sci* 16: 780–4.
53. Williams, J.R., T.R. Insel, C.R. Harbaugh, and C.S. Carter. 1994. Oxytocin administered centrally facilitates formation of a partner preference in female prairie voles (*Microtus ochrogaster*). *Journal of Neuroendocrinology* 6(3): 247–250.
54. Winslow, J.T., N. Hastings, C.S. Carter, C.R. Harbaugh, and T.R. Insel. 1993. A role for central vasopressin in pair bonding in monogamous prairie voles. *Nature* 365(6446): 545–548.
55. Wang Z, Young L.J., De Vries G.J., Insel T.R. 1998. Voles and vasopressin: a review of molecular, cellular, and behavioral studies of pair bonding and paternal behaviors. *Prog Brain Res.* 119: 483–99.