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The Current Debate: (C+M) E and Ultimate Harm

Abstract: *Persson and Savulescu (2011b) is a largely successful defense of the position promoted in Persson and Savulescu (2008) against Fenton's critique of this position in Fenton (2009). However, one of Fenton's essential censures has remained without response: if moral enhancement (ME) is to occur at the genetic or biological level, as Persson and Savulescu suppose it can and ought to, it will not be possible without significant scientific progress, including cognitive enhancement (CE) by bio-medical means. I will offer a response here to this critique Fenton raised—a response Persson and Savulescu did not give. It will be based on the concept of "integrated neuro-enhancement", abbreviated (C+M) E.*

Key words: *cognitive enhancement, moral enhancement, integrated neuro-enhancement, ultimate harm.*

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A Reply to Fenton Persson and Savulescu Did Not Give

Fenton (2009) calls into question Persson and Savulescu (2008).¹ In Persson and Savulescu (2011b) this call has remained unanswered in one segment: non-traditional CE will likely lead, claims Fenton, to the very scientific advances necessary to discover how bio-medical ME is to occur. But albeit cognitive bio-enhancement might be essential for moral bio-enhancement, Persson and Savulescu argue that the latter is the more urgent task, as even current levels of scientific progress (i.e., progress that occurs without mass scale cognitive bio-enhancement of humans) place us at risk from the morally corrupt, and result in the possibility to use scientific knowledge for reprehensible purposes (e.g., weapons of mass destruction). Fenton's critique of Persson and Savulescu:

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The urgency of moral enhancement appears to place us in a bind of the ‘damned if you do, damned if you don’t’ variety. If we continue scientific research into non-traditional enhancement we are advancing the very body of knowledge that could prove to be our downfall, should the morally corrupt minority get their hands on it. But if we do not continue scientific research into enhancement, if we halt it out of concern for the consequences, then we have no hope of achieving the great moral progress that will ensure our survival as a species. Persson and Savulescu’s argument leaves us with an apparently intractable dilemma: scientific progress is both the means of our salvation, and the means of our downfall (Fenton 2011: 148).

88 Persson and Savulescu (2008) argue that technological developments have not been accompanied by a corresponding moral development of humans (i.e. technology has advanced faster than morality). Hence, if we wish to save humanity from its self-annihilation or a somewhat milder form of mass-scale harm, moral bio-enhancement is needed. Traditional CE and ME are not sufficient, because they cannot keep up with the speed of technological developments.

Furthermore, morality is to a significant degree founded on our biological composition. Douglas (2008) points to the evidence that oxytocin augments trust and empathy, while serotonin (and SSRIs) increases cooperation, while reducing aggression². Methylphenidate (*Ritalin*, *Concerta*) also diminishes violent belligerence. Moreover, a number of personality types that induce to immoral behavior apparently have biological underpinnings: antisocial personality disorder may have a genetic basis, whereas criminality has been related to MAO mutation on the X chromosome (Douglas 2008: 233).

An important examination of the role of serotonin is offered in Crockett (2010). Serotonin turns out to modify both moral judgment and behavior. It does so by strengthening our aversion to personally inflicting harm on others. Thus, serotonin appears to have the capacity to morally enhance us. Crockett’s experiment consisted of serotonin levels in healthy volunteers being increased with an SSRI. The effects of the SSRI on moral judgment were measured in a number of moral quandaries in which utilitarian outcomes (e.g., saving five human lives) were compared and contrasted to extremely aversive harmful actions (e.g., killing an innocent human). Individuals whose serotonin levels were increased by the SSRI proved to be more inclined to judge emotionally loaded harmful actions as unacceptable (Crockett 2010: 17433).

Evidence for the biological underpinnings of morality can also be found in “ultimatum games” (UGs) in which monozygotic twins who have been brought

² It ought to be noted, however, that increasing trust and decreasing violent aggression will not always constitute a moral enhancement. I thank Tom Douglas for a similar remark about this part of my paper.

up separately exhibit similar responses. UGs feature two players and two stages. In stage 1 the first player proposes a specific split of a fixed amount of money to the second player. In stage 2 the second player can either accept the proposed split or reject it. If she accepts, the sum is divided according to the first player's proposal. If she rejects, both players get 0. Reactions to "unfair offers" (other than 50-50 splits) fluctuate, but the similarity of the responses in the study on identical twins who have been exposed to different upbringing appears to support the notion that genetic makeup can affect reactions to "unfair offers".

Although none of these findings suggests that we already have reliable means of achieving ME, they do suggest two things:

- 1) much of our morality has biological underpinnings;
- 2) further scientific advances may bring about reliable means of achieving ME.

Persson and Savulescu argue that we ought to speed up the development of such means if we wish to avoid the danger of "ultimate harm" (UH). They define UH as something that can permanently obliterate conscious life, or spoil its conditions so drastically that, in general, life will not be worth living anymore (Persson and Savulescu 2011b). The danger of UH has become real as a result of technological developments in the previous decades taking place at a faster speed than our moral development. We fear that human existence on our planet might come to an end and are willing to use all means that are at our disposal to eliminate that possibility, even if the likelihood of it becoming reality is very slight. An increase in the probability of UH from 0.05 to 0.1 might not noticeably affect the intensity of our worry, while an increase in it from 0 to 0.05 could shock us.

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All in all, moral bio-enhancement is needed if humanity is to minimize the danger of UH. But how to attain a moral bio-enhancement of humankind if scientific advances (including non-traditional forms of CE and ME) have to wait until we are sufficiently morally enhanced? How to speed up and to halt new forms of bio-enhancement at the same time? How to solve what Fenton describes as the "intractable dilemma" of Persson and Savulescu?

Persson and Savulescu argue that CE ought to be "accompanied" by ME:

For if an increasing percentage of us acquires the power to destroy a large number of us, it is enough if very few of us are malevolent or vicious enough to use this power for all of us to run an unacceptable increase of the risk of death and disaster. To eliminate this risk, cognitive enhancement would have to be accompanied by a moral enhancement which extends to all of us, since such moral enhancement could reduce malevolence (Persson and Savulescu 2008: 166).

The argument that ME ought to “accompany” CE can be interpreted as to imply (in some formulations that have been given by Persson and Savulescu), that the latter should be avoided until we are sufficiently morally enhanced:

Therefore, the progress of science is in one respect for the worse by making likelier the misuse of ever more effective weapons of mass destruction, and this badness is increased if scientific progress is speeded up by cognitive enhancement, **until** effective means of moral enhancement are found and applied” (Persson and Savulescu 2008: 174; emphasis added).

This citation suggests that “to accompany” can be understood here as “to precede”.

That CE is to be *preceded* by ME might also have been implied by Persson and Savulescu’s reference to one of C.S. Lewis’s fantasy novels for children and the “Deplorable Word” (a magical curse which will end all life in the world except that of the one who pronounces it).

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If we all knew the Deplorable Word, the world would likely not last long. The Deplorable Word may arrive soon, in the form of nanotechnology or biotechnology. Perhaps the only solution is to engineer ourselves so we can never utter it, or never want to utter it (Persson and Savulescu 2008: 175).

In other words, Persson and Savulescu argue here that we ought to “engineer” ourselves morally in such a manner that we will be highly disinclined to destroy ourselves with the cognitive capacities we have. In that sense, our first task might well be ME, while much of CE has to wait until this task has been accomplished.

In their most recent writings, however, Persson and Savulescu do not suggest that CE has to wait until we are sufficiently morally enhanced. They rather insist on a simultaneous development of CE and ME (made clear also in the book *Unfit for the Future* (see Persson and Savulescu 2012)). But it is not entirely transparent what the implications of this simultaneity are. We wish to avoid UH and hence we should morally enhance ourselves. But does that mean that we are to slow down CE before we become capable of facing contemporary challenges of the technologically advanced world we inhabit—a capability we can achieve only by ME? Persson and Savulescu do not give us an unambiguous answer. Some hints favouring a postponement of CE until we are sufficiently morally advanced we cited from their earlier writings, but it is not something that turned out to be their stable position³.

³ Ingmar Persson pointed out in a number of conversations we had in 2011 and 2012 that his and Savulescu’s position is *not* to be interpreted as favoring the view that ME is to precede CE (irrespective of some indications that go in that direction in their earlier writings). I thank him hereby for this clarification.

I propose a possibly more tangible way of dealing with the question of how to speed up and to halt new forms of bio-enhancement at the same time: to favor only those types of CE that lead to ME. Hence, not to abandon CE altogether, but to further it only insofar it leads to ME. That means that we are to promote only those types of CE and ME that can be regarded as an integrated whole. Elsewhere I have called this “integrated neuro-enhancement”, abbreviated (C+M) E (see Rakic 2012).

What does the concept of (C+M) E entail? In what follows I will try to make that clear, both theoretically and at the hand of a number of examples. They will show that integrated (C+M) E is indeed possible and that it can be utilized by Persson and Savulescu in order to defend their position from Fenton’s censure.

(C+M) E as a Reply to Fenton

As we have seen, it is gradually becoming possible to develop medicines that can help us act more morally. Trust can be promoted by drugs containing oxytocin, cooperation by SSRIs, while violent aggression can be reduced by methylphenidate. Such medicines can have a direct impact on our behavior, but they can also influence our motives, inducing us to act more in line with what we consider to be moral. In other words, it might well be some types of drugs, rather than rationality and education, that can have a favorable bearing on the enhancement of the morality of our actions. They improve the morality of our deeds, not solely our comprehension of morality. They primarily lead to morally enhanced *behavior*.

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Jones (2008) offers empirical evidence that relates intelligence to cooperative behavior. If this evidence is well-founded, the implication is that intelligence is one of the drivers of moral behavior: when we are more intelligent, we cooperate more and are less prone to violent conflict or to secretive actions; hence, we might be less inclined to certain types of immoral behavior; consequently, enhanced intelligence appears to help us act more morally. As it is well known, however, not all motives for CE are morally justified (e.g., the use of methylphenidate by students in order to provide them with a competitive advantage over their colleagues during exams might be morally dubious). Hence, we should not enhance our cognition indiscriminately. We have to use our moral judgment in order to decide which types of CE are ethical. But in the position defended by Persson and Savulescu it is precisely this judgment that is alleged as that what ought to be enhanced.

The only morally permissible solution to this problem appears to be to promote exclusively those types of CE that lead to ME. And that is also the solution to the “bootstrapping” problem in Persson and Savulescu (2011a): human beings, i.e. those who need to be morally enhanced, will make a morally wise use of the techniques of cognitive enhancement by ensuring that all CE serves the purpose of ME. Hence, we need to approach cognitive and moral enhancement as a single project. Our objective ought to be cognitive *plus* moral enhancement, (C+M) E.

Persson and Savulescu argued, as we have seen, that ME ought to occur before CE. But I favor a combined application of cognitive and moral enhancement. Two such applications have been identified:

- One that is based on the use of appropriate medication leading to (C+M) E. The utilization of such medication can impact on our motives, having an effect on our behavior (ME), or it can directly affect our behavior. This is essential, because it has the potential of closing the gap between what we do and what we believe is right to do.
- (C+M) E that is not caused by medication, but that can also either directly or indirectly affect our behavior (e.g., cooperative behavior that can be brought about by traditional enhancement of our intelligence, as following from Jones (2008)). This application is not less essential, because it also deals with the type of CE that makes us *act* more morally, i.e. the type of CE that narrows the discrepancy between what we do and what we believe ought to be done. Being cognitively enhanced (e.g., more intelligent), we appear to become more cooperative and less prone to violent, secretive and other types of morally dubious behavior.

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Integrated neuro-enhancement, (C+M) E, lessens the danger of UH, whereas it does not halt scientific advances. These advances would be limited, however, to those that enhance us morally. Before embarking on an elaboration of the examples, let it be emphasized that I understand ME in a broad sense here. Most importantly, it includes those types of CE that serve a moral purpose. This understanding is warranted, because an increase in number of acts with a moral purpose enhances us morally. Acts with a moral purpose, I posit, include those that are directed to achieving the well-being of others, but also of oneself—provided that these acts do not harm others. Let us look now Examples of (C+M) E follow.

Bostrom and Roache (2011) make the case that general cognitive capacity is positively correlated with a number of morally desirable outcomes. It reduces the risk of a variety of economic and social mishaps, including bad health and accidents, while reducing overall mortality and improving educational outcomes. Jones (2008) has also discussed that in prisoner's-dilemma type experiments individuals with higher cognitive abilities do not only cooperate more often, but are also found to have a stronger future orientation—something that appears to promote economic success and decrease the likelihood of morally undesirable outcomes.

Robin Hanson (2009) addresses one attribute that can be associated with both our cognitive and moral capacities: truth-orientation. He discusses three types of enhancement that might contribute to our truth-orientation: more recorded and standardized statistics on our lives, prediction markets on important disputed topics, as well as interventions that could cause our minds to be more transparent.

These types of enhancement can result in a reduction of self-deception and bias—vices that are especially dangerous in a modern world with a variety of potentially dangerous technologies. Moreover, these vices are Janus-headed: they have both a cognitive and moral side. Consequently, CE that strengthens our truth-orientation has a moral purpose. It is CE that leads to ME.

There are a variety of laws and regulations that are Janus-headed in a similar manner. Bostrom and Roache give the following examples of safeguards of cognition: regulation of lead in paints and water; requirements of boxing, bicycle, and motorcycle helmets; bans on alcohol for minors; mandatory education; folic acid fortification of cereals; legal sanctions against mothers taking drugs during pregnancy (see Bostrom and Roache, 2011). But they do not go into the Janus-headedness of these laws and regulations: not only do they safeguard or promote cognition, but in addition to that, they have a moral purpose.

Bostrom and Roache also discuss recent studies indicating that children's IQ can be boosted up by increasing maternal docosahexaenoic acid (DHA) intake during pregnancy. This increase can be accomplished by supplementing infant formula with DHA. Furthermore, cognitive function can be enhanced by the treatment of hundreds of millions of people worldwide suffering from iodine deficiency. Iodine deficient populations average between 12.5 and 13.5 IQ points less than normal populations (see Bostrom and Roache 2011). Hence, by supplementing infant formula with DHA and by iodizing salt in areas that are worst affected by iodine deficiency (sub-Saharan Africa, South Asia, but also Central and Eastern Europe and the CIS), we cognitively enhance populations with a moral purpose.

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Unlike the mentioned examples of (C+M) E, cognitive enhancement without a moral purpose can hardly be considered as morally justified. At the very least, it has a morally ambiguous status. The use of methylphenidate with the aim of providing oneself with a comparative advantage over classmates would be an example⁴. In this context, it is useful to compare medicine in general with sports medicine. Tjorbjorn Tannsjo believes that in medicine in general we are to accept both enhancement and what he calls “positive measures” (the improvement of functioning of a human organism within the range of natural variation). In sports medicine, on the other hand, both enhancement and positive measures are considered as morally dubious, because in elite sports we search for the limits of human capacities, endorsing a very specific notion of justice according to which we think highly of individuals who excel for having been endowed with something valuable in the natural genetic lottery. Let it be noted that Tannsjo rejects this notion of justice (see Tannsjo, 2009). In the perspective of integrated neuro-en-

4 On the other hand, there is nothing morally doubtful in using methylphenidate for improving our motivation or boosting our self-confidence without the purpose of achieving an advantage over others in a competitive setting.

hancement (C+M) E, enhancement in general and enhancement in sports medicine are both difficult to accept if they do not serve a moral purpose.

The “recreative” use of anti-depressants and tranquilizers (in order to improve our normal mood) can possibly serve the purpose of making us feel better. Such a purpose might be considered to be morally justified, according to the criterion we have proposed for “acts with a moral purpose”. The recreative use of the mentioned drugs would then be an example of (C+M) E: it can possibly help us improve our well-being without causing harm to others. In that sense, it differs from the use of methylphenidate with the purpose of achieving a comparative advantage over competitors.

A Relativization of Ultimate Harm

Let me conclude with a few additional comments related to the danger of UH. Persson and Savulescu argue that the negative instrumental value of UH is *indefinitely* high because of two reasons:

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- there is no way of telling how much of a net balance of goodness UH prevents, i.e., how much of worthwhile life there would have been in the future had it not occurred;
- we might well have overlooked some of the factors that contribute to the risk of UH.

These two reasons make it warranted to demand that we try to minimize UH risk, whatever the expected gain of the alternatives might be—within realistic limits (Persson and Savulescu 2011b: 442).

Some factors contributing to UH risk we might indeed have overlooked. It is also impossible to know how much of a net balance of goodness UH prevents. But that does not entail that the instrumental value of UH is indefinitely high. It might as well entail that the negative instrumental value of a specific UH is zero, because it could have been followed right away by another UH. Humanity might thus not have lost anything after the occurrence of a specific UH.

Furthermore, the existence of humanity does not necessarily imply a net balance of goodness. Its existence might at some point entail the opposite, i.e. a net balance of badness. The fact that we wish to survive has a lot to do with our biology. Humans do not differ from other organisms in their wish to preserve themselves. But that does not mean that their survival entails a net balance of goodness. The self-annihilation of humanity might at some point amount to the annulment of a net balance of badness. Then it would be good for us not to live on. At a certain stage of our existence we might not have a strong wish anymore to continue to exist. Or we might even wish not to exist. That can be a stage on our evolutionary

path at which we have subdued the biological need to survive, or to survive at any cost. Hence, it might be argued that Persson and Savulescu, trying to employ all imaginable means to lower the probability of UH (including compulsory ME in some of their earlier writings (e.g., Persson and Savulescu 2008)), advocate a “survival-at-any-cost concept”.

All in all, the instrumental value of UH is not *indefinitely* high. Nonetheless, it is high enough for us to seek ME. But, as I have previously argued, CE should continue to proceed only if leading to ME. The danger of UH is thus to be minimized by the application of the integrated neuro-enhancement formula (C+M) E. And that is the formula that can be employed by Persson and Savulescu in order to escape Fenton’s rebuke: (C+M) E enables us to proceed with scientific research into enhancement without having to be appalled by the possibility that a morally corrupt humanity will use scientific knowledge for reprehensible purposes.

But can a morally corrupt *minority* get their hands on our scientific knowledge and cause UH with it? Yes, it can. And that is a danger we have to learn to live with. If we compel ME we encroach upon a key element of our human existence, i.e. upon our freedom. As freedom is a critical building block of our morality (i.e., of us acting *intentionally* in a morally appropriate manner), and morality is an essential element of us being “human” (as Persson and Savulescu also argue when asserting that it is morality rather than biology that ensures us human status (Persson and Savulescu 2010)), we are to avoid UH, but not at any cost. We are not to make ME mandatory for the general population. Compulsory ME is an option that ought to be considered in the case of some criminals (e.g., repeated child rapists), but if it is envisioned as a measure for all, it would come at the cost of our specifically human existence. Hence, we have to lower the danger of UH by (C+M) E, but are not to fall victim to the “survival-at-any-cost bias”.

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Aktuelna debata: (K+M) P i konačna šteta

Apstrakt

U Persson and Savulescu (2011b) uglavnom se uspešno brani pozicija ovih autora izneta u Persson and Savulescu (2008) od kritike te pozicije u Fenton (2012). Fentonova ključna kritika je pak ostala bez odgovora: ako moralno poboljšanje (MP) treba da se odigra na genetskoj ili biološkoj ravni, kao što smatraju Persson i Savulescu, ono neće biti moguće bez značajnog naučnog napretka, a koji uključuje kognitivno poboljšanje (KP) biomedicinskim sredstvima. U ovom članku iznosi se odgovor Fentonovoj kritici – odgovor koji su Persson i Savulescu propustili da daju. On se zasniva na konceptu „integrisanog neuropoboljšanja“, skraćenog (K+M) P.

Ključne reči kognitivno poboljšanje, moralno poboljšanje, integrisano neuropoboljšanje, konačna šteta.