Enhancing Future Children: How It Might Happen, Whether It Should

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Introduction

According to Savulescu and Kahane's (2009) Principle of Procreative Beneficence (PB), parents are obliged "to create children with the best chance of the best life," which pursuit, as advocates conceive it, includes profound cognitive enhancement.[1] I argue, in contrast, that applying PB thus, should relevant means become available, would deeply harm future children by sealing reason off from the input to moral judgments and decision-making that other faculties provide. In the cases of desire and emotion, enhancement supporters dismiss the nonrational (i.e., what is *other than* reason) as *ir*rational; the relation of each to reason is fundamentally adversarial, making an alliance with reason toward shared ends unthinkable.[2]

Far from seeking harmony between rational and nonrational aspects of us as key to individual and communal flourishing, enhancement supporters laud the boundless elevation of rational ability per se, hinting at an ideal of self-sufficiency. This approach is deeply problematic if, as MacIntyre (1988: 123) observes, "one's rationality [is] not merely supported … but partly constituted by one's membership in and integration into" social milieux. Further, philosophers' customary isolation of

[1] For advocates of the dramatic augmentation of our capacities, particularly regarding cognition and life expectancy, the resulting beings would surpass us so far that they could only be deemed posthuman. For further discussion see Levin (2014, forthcoming).

[2] In this essay, I use "cognitive"/"cognition" and "rational"/"reason" interchangeably because, as far as advocates of cognitive enhancement discuss the matter, reason is in a quite separate compartment from emotion and desire. Further, advocates of cognitive enhancement do not address sense-perception as an aid to the cultivation and use of rationality; this may be related to the fact that they tend to think in terms of ramped-up ability simpliciter, without worrying about either worthwhile ends toward which the faculty might be directed or how the ability is developed, e.g., via experience and education.

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the cognitive from the noncognitive dimension of human beings (Kipke 2013: 146) is at odds with current research in neuroscience and psychology showing that one cannot "separate emotion and cognition clearly so that we can selectively improve cognitive properties" (154; see also Zohny 2015: 261).[3]

Aristotle's ongoing pertinence to debates about human thought and character is clear not only from his role as the leading inspiration for virtue ethics but also from his bioethical invocation, including, of late, regarding cognitive enhancement. Aristotle's linkage to the debate over cognitive enhancement is a fruitful development, but showing how deeply relevant his ideas are necessitates fuller exploration thereof than has occurred so far. Thus, having critically presented advocates' views in the sections "What Is Cognitive Enhancement?," "The Nonrational Is Misconstrued and Seriously Shortchanged," "Sympathy, Empathy, and Sociality," and "Advocates' Rational Essentialism," I reinforce and deepen that evaluation in the section "Aristotle's Moral Psychology in the *Nicomachean Ethics*" through sustained engagement with Aristotle's account of psychic harmony and moral virtue in that treatise.[4]

Savulescu and Kahane (2009: 289) assert that, to know how to direct enhancement endeavors, "we need to form reasonable opinions on difficult questions about the nature of well-being and the good life." Enhancement supporters have, however, been largely silent on this question, preferring to engage with opponents via a methodology of "overlapping consensus" (Schaefer et al. 2014) that steers clear of such inquiry *by design*. Because the enhancement debate ultimately concerns what values our views of flourishing embody, it should be recast so that this crux is squarely at the fore. As we embark on this reframing, we would do well to bear in mind Aristotle's insights about the nonrational in relation to reason and his unwavering focus on the human "that for the sake of which" (*hou heneka*) all that we do is, perforce, undertaken.[5]

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[3] Some of this evidence comes from the study of psychopaths (Kennett and Fine 2008).

[4] Though its focus is quite different, the present paper complements the work of Radoilska (2010), who draws on the *Nicomachean Ethics* when arguing that cognitive enhancement would likely jeopardize the very possibility of agents' excelling in terms of their contributions to epistemic results and appreciation of the epistemic endeavor. In contrast, Fröding's (2011) assertion that cognitive enhancement could "mimic" some "worthwhile aspects of the virtuous life" per Aristotle (229, cf. 232) reflects a failure to appreciate sufficiently the non-negotiability of Aristotelian moral virtues as uniquely exacting excellences, ones requiring balance between rational and nonrational involvement. In addition, Fröding leaves out of account Aristotle's insistence that the subject matter of ethics differs substantially in its degree of a priori exactitude from mathematics (*Nicomachean Ethics* VI 8, cf. I 3), which means, in the former case, that extensive habituation and experience from early childhood are needed for one's development of the requisite contextual attunement (I 4, 7, II 1, III 5).

[5] Though arguing the point falls outside my purview here, I wish to register my view that while Aristotle's own handling of reason and the nonrational in the *Nicomachean Ethics* is rooted in the virtue-based approach that chiefly inspired contemporary virtue ethics, the moral-psychological points it makes about these are logically detachable and quite important whether or not one is committed thereto.

What Is Cognitive Enhancement?

Though advocates assert or strongly imply far-reaching positive effects of cognitive enhancement on well-being, they do not offer a clear and consistent picture of what "cognitive" enhancement would incorporate (cf. Hildt 2013: 4). The following passages illustrate the problem:

> Th[e] relation between autonomy and cognition is generally positive—greater reasoning, deliberation and evaluation typically leads to greater autonomy. There are a number of ways one could cash out the relationship between reasoning and autonomy. … [W]e will focus on three: deductive/logical competence, comprehension (including the avoidance of false beliefs), and critical analysis. (Schaefer et al. 2014: 126)

The focus here is on discursive, or stepwise, reasoning, in particular, logical entailments and exclusions.

Elsewhere, Savulescu (2005: 38) contends that "what separates us from other animals is our rationality, our capacity to make normative judgements and act on the basis of reasons." Our first passage featured a logical process that is "completely content-neutral about values" (Schaefer 2011: 10). But here in the second, "rationality" is equated with an ability to render "normative judgements," with the term "normative" reflecting a necessary tie to content and values in the moral domain that is lacking in Schaefer et al. (2014: 126). Savulescu (2005: 38) continues:

> When we make decisions to improve our lives by biological and other manipulations, we express our rationality and express what is fundamentally important about our nature. And if those manipulations improve our capacity to make rational and normative judgements, they further improve what is fundamentally human. Far from being against the human spirit, such improvements express the human spirit.

"Rational" and "normative" are once again linked, though now—versus the earlier "make normative judgements and act on the basis of reasons"—both terms are used of judgments.

In our final illustration, "intelligence" is said to encompass "many kinds: memory, temperament, patience, empathy, a sense of humour, optimism and just having a sunny temperament" (Savulescu 2005: 37). In this case, traits from memory to empathy are lodged, without elaboration, under intelligence, versus—at least in part and more plausibly—empathy's being located under the nonrational qua emotion and requiring cultivation as such for the sake of its bearing on moral judgment. Intelligence here spans far more territory than that associated with rationality/cognition in the passages treated above. But if the faculty to be augmented under "intelligence" is supposed to differ from what falls under "rationality"/"cognition," no such distinction is made. What is more, "intelligence" and "cognitive capacities" are used interchangeably elsewhere (Schaefer et al. 2014: 130–131). Taken together, the foregoing passages exemplify the fact that enhancement advocates offer an array of statements, not obviously congruent, about what cognition spans and thus what its heightening would encompass.

The Nonrational Is Misconstrued and Seriously Shortchanged

Having briefly documented the relative lack of clarity and consistency in enhancement proponents' constructions of rational ability, I turn to their severance of that capacity from the input to judgments and decision-making that nonrational aspects of us provide. The separation is problematic if, far from being simply an unfortunate feature of human existence as things stand, moral decision-making at its best requires significant involvement of the nonrational. This view, deeply true for Aristotle back in the fourth century BCE, is increasingly confirmed by findings in neuroscience (Borg 2008: 159); indeed, according to McGeer (2008: 229), "our moral nature is shaped by (at least) three different tributaries of affectively laden concern."

How, in defenses of cognitive enhancement, is the nonrational shortchanged?[6] Schaefer et al. (2014: 126) set the temptation to indulge a desire against reason's directive to refrain from its gratification:

> Strictly speaking, desires are non-cognitive. However, reasoning capacities can be crucial in resolving potential conflicts. In the first place, some logical abilities will be needed to recognize that there is a conflict in need of resolution. An unwilling addict … must recognize the conflict between the lower-order desire to consume some substance and the higher-order desire to cease consumption of that substance (and comprehend the greater importance of the higher-order desire) in order to begin to overcome her condition.

This passage contains unclarities and unargued assumptions. Controversially, the relation of reason to desire is viewed as not just tense but fundamentally hostile such that drawing toward an object of desire, as opposed to holding back, constitutes akratic failure. Further, it is not evident what relation the authors intend between higher-order desires and reason. If reason itself is the source of higher-order desires, what renders them noncognitive? Alternatively, are only lower-order desires thoroughly noncognitive, while higher-order ones possess a cognitive dimension? If they lack a cognitive facet, what, precisely, makes higher-order desires superior noncognitive phenomena, and on what basis, if any, can they coordinate with reason? Whatever the answers, advocates' construction of rational dominance excludes a picture on which the noncognitive qua desire evidently has an optimal relation—one of balance, say—to reason.

Though Schaefer et al. (2014) do not address emotion, so-called negative emotions are treated elsewhere as fundamentally deleterious and hostile to the rational. Per Savulescu and Kahane (2009: 281), we would be better off if they were eliminated: "reproducers also have strong reasons to seek to prevent even an innate tendency to negative affect, or the severe impairment in social skills associated with Asperger's syndrome." Not simply its expression, but our very capacity for strong "negative" emotion, would be removed, as in, genetically deleted.

Here, as with desire in Schaefer et al. (2014), one finds unargued claims. Savulescu and Kahane (2009) take for granted that phenomena like anger function in the disruptive fashion of appetitive desires. They assert the merit of extirpating

[6] The ensuing discussion of desire draws on Levin (2016: 60–61).

the very capacity for "negative affect" as though it were self-evident both what negative emotion encompassed and that it must be subdued to the vanishing point. Savulescu and Kahane fail to provide an account of what makes emotional responses negative versus positive, a necessary basis for which would be a defense of the view that such a bifurcation exists.

Advocates' claims are not only undefended but controversial. Though Haji (2010) speaks of negative emotion, he repudiates the view that negative and positive here are, as such, adversarial. Quite the contrary: "Fear and empathy are different (negative and positive) emotions that together play a necessary role in the capacity for anticipatory guilt and regret. … There is … a fairly intimate connection between fear and empathy, on the one hand, and moral internalization, on the other, and in virtue of this connection, an indirect relation between fear and empathy and ethical perception" (141–142). This means that "deficits in fear, guilt, and empathy … prevent internalization of *moral* norms of conduct … hamper[ing] development of … capacities of *ethical* perception" (143; italics in original).

On complementary grounds, Tappolet (2010: 336), too, rejects the idea of a negative-positive chasm in the sphere of emotion:

> [T]here is reason to think that different types of emotions have a different impact on attention—positive emotions are thought to widen and not to narrow our attentional focus [and] it is certainly plausible to claim that fear narrows the focus of attention. Although this influence is a-rational, it would be a mistake to infer that it necessarily leads to irrationality. Quite … the contrary, it often makes it possible for the agent to focus on what is important.

Far from addressing such depictions, enhancement advocates do not make it evident how or even whether they allow for positive *emotion*. This is not the same as saying that they do not retain a place for what, for instance, empathy, many *consider* positive emotions. The question is whether enhancement advocates view them as such and, if so, how that salutary assessment squares with what they actually say about the noncognitive (see further the section "Sympathy, Empathy, and Sociality").

As for what is rejected, anger and aggressiveness are not differentiated. Thus, Savulescu and Kahane (2009: 284) contend that "[t]he world and the lives of the people in it might be better if everyone were funnier, more intelligent, more empathetic and less aggressive." This lack of distinction matters, for unlike sheer aggressiveness, justified, strong anger might be not only warranted but interlinked with empathy. One may, for example, react thus to a close friend or family member for failing yet again to live up to the standards set by her own laudable values, where one knows how difficult it can be to do that routinely, sees how detrimental this way of existing is to the person's prospects for living well by her criteria, and is all too aware of how highly capable she is of doing better.

Elsewhere, Savulescu (2005: 37) simply fuses anger and aggressiveness:

> Some children would eat [the marshmallow] as soon as the researcher left, others would use a variety of strategies to help control their behaviour and ignore the temptation of the single marshmallow. … Impulse control has also been linked to socio-economic control and avoiding conflict with the law. The problems of a hot temper can include life in prison. Shyness … can greatly restrict a life. … [J]ust having a sunny temperament [where the point of contrast could be anger and/or aggressiveness] can profoundly affect our lives.

The fact that anger and aggressiveness *may* combine, and are noted to do so with some frequency in prisoners (Shniderman and Solberg 2015: 317, 322), is no warrant for conflating anger and aggressiveness or for concluding that strong anger is, as such, problematic.

But the problem here goes beyond this. On advocates' account, strong expressions of emotions such as anger would never be appropriate, hence Savulescu and Kahane's (2009) investment in extirpating the very capacity for such. This controversial position is not flagged as such, let alone defended. As Tappolet (2010: 343) observes, "if you accept that pity or compassion come[s] with altruistic motivations, you must also accept that fear for [or anger toward] others involves altruistic motivations. … [T]he relation of fear [or anger] to action and motivation is complex. Insofar as emotions are perceptions of values, they can inform us about our practical reasons, such as the fearsome [or anger-provoking]." On this line of thought, and per the earlier example involving anger, stamping out the capacity for strong expressions of emotions such as it and fear would diminish relations with close friends and family members insofar as these emotions, like empathy and sympathy, can be prompted by their plights. Further, from a broader human standpoint, to remove our very capacity for strong anger is to eliminate an important source of motivation to ameliorate social injustice.

It is not evident whether enhancement advocates wish to draw a line between acceptable and unacceptable anger and, if so, how they possibly could. Not only are distinctions involving psychic phenomena like anger broadly contested, but even if an agreed-upon conceptual delineation between morally acceptable and impermissible anger were achieved, enhancement proponents cannot reasonably imagine now with any confidence that a capacity for strong anger could be genetically eliminated in future people without our doing away with the capacity for anger altogether.

Sympathy, Empathy, and Sociality

As we have seen, desire and negative emotion are deprecated and set against reason in a deeply adversarial way. Meanwhile, advocates of cognitive enhancement laud empathy, sympathy, and sociality, and mark them for augmentation. Based on PB, "parents would aim to select children with psychological traits that are likely to increase the future child's autonomy—traits such as foresight or self-control, empathy and sympathy" (Savulescu and Kahane 2009: 282). According to Schaefer et al. (2014: 131), "Even if increased autonomy [through cognitive enhancement] remove[s] a handful of options (such as joining a community that disvalues autonomy) from the menu, many more will be opened up (more career opportunities, better management of resources to obtain what one wants, and even greater ability to discern how to integrate into a wide variety of communities, etc.)." Indeed, cognitive enhancement would itself enable one "to develop greater understanding of herself and others" (Savulescu 2005: 38).

Not only are these encomia striking given advocates' sharply critical lens on the nonrational per the previous section, but, once again, the gaps and unanswered

questions are highly significant. Discussions of desire and negative emotion by proponents of cognitive enhancement do not stipulate that positive emotions are omitted from condemnation, nor do advocates elsewhere present a different analysis of positive emotion. This omission is glaring since any critique of "negative" emotion necessarily relies, even if tacitly, on a negative-positive contrast.[7] As for the salutary prong of that contrast, if sympathy and empathy are—or at least centrally involve—the nonrational, supporters of cognitive enhancement have not (1) indicated this; (2) used empathy and sympathy to anchor an approving take on anything nonrational; or (3) presented a favorable view of a subcategory of the nonrational that could be applied to these features. If the nonrational is not being condemned outright, this needs to be made absolutely clear, and positive emotions like empathy explicated.

As previously observed, far from unpacking such traits under the head of emotion, Savulescu (2005: 37) lists empathy under "kinds" of *intelligence*, that is to say, under cognition. The same presumably applies to sympathy, which is often taken to imply less familiarity with particular individuals than empathy. But if cognitive enhancement is itself to augment sympathy and empathy, proponents do not articulate, let alone defend, a view of the mind on which heightened cognitive ability might be expected to intensify those qualities.

Absent further argument, it is highly problematic for advocates to claim that cognitive enhancement would upgrade empathy while at the same time eliminating "an innate tendency to negative affect" (Savulescu and Kahane 2009: 281). On the one side, if supporters take empathy itself to fall under cognition, meaning that cognitive enhancement would include its augmentation, they have not argued for this construction of it. On the other, if empathy—like desire and negative emotion—is itself noncognitive, then it is most difficult to see how cognitive enhancement as such would heighten it. More fundamentally, if it is noncognitive, enhancement supporters have offered us no reason to think that it is *worth* retaining, let alone heightening, because the sole template offered for the noncognitive presents it as warranting quashing and ultimately elimination. Further, enhancement proponents are not off the hook if they claim that empathy itself includes both rational and nonrational dimensions, as they would have to defend this construction of it. In addition, they must show what the cognitive aspect of empathy is such that cognitive enhancement could reasonably be expected to heighten it and why empathy is exempt from advocates' overt, highly critical handling of desire and negative emotion.

As to sociality—which itself requires a live capacity for sympathy and empathy—Schaefer et al. (2014: 126–27) stress the harmful impact of excessive conformity with others' views. While it is clear what enhancement supporters reject in terms of humans' reciprocal impacts, it is not at all evident what brand of sociality they wish to replace it with (see further "*Phusis* (Nature) *1* Carefully Distinguished from *Phusis 2*," the final subsection of "Aristotle's Moral Psychology in the *Nicomachean Ethics*").

[7] On contrast-dependency in human thought and experience, see further Levin (2014: 6, 9–10).

Advocates' Rational Essentialism

As we have seen, when addressing the nonrational as such, proponents of cognitive enhancement do not consider the possibility of real calibration in our expression of nonrational features individually (e.g., anger) or of harmony between rational and nonrational dimensions, where both are deemed essential. Instead, they are concerned to move us to a plane of cognitive operation where the nonrational would not intrude since it had been genetically edited out or because, at minimum, cognition had become so powerful that nonrational impetuses would effectively not register.

Enhancement advocates' routine extolling of cognitive ability and its radical augmentation, with their disparagement of the nonrational when handling it expressly, suggests a leaning toward rational essentialism (see especially Savulescu 2005: 38). Aristotle clearly endorses a version thereof. Contra enhancement supporters, however, he does not simply critique deficient nonrational expressions but foregrounds a key place for the nonrational in human flourishing itself. My challenge in this essay is thus not to rational essentialism of whatever kind but rather to its interpretation by proponents of cognitive enhancement. Aristotle's *Nicomachean Ethics*, to which I now turn, offers a rich account not only of how we humans often go wrong moral-psychologically but also of how nonrational and rational dimensions of us are interwoven in a flourishing life.

Aristotle's Moral Psychology in the *Nicomachean Ethics*

This section addresses the following topics: (a) Aristotle's framework for approaching the nonrational; (b) his union of desire and emotion under the head of *pathê*; (c) the Doctrine of the Mean; (d) Aristotle's notion that emotional responses deemed negative by enhancement advocates may be not simply permissible but morally required; (e) the moral import of pleasure and desire; and (f) Aristotle's delineation of what I call *Phusis* (i.e., nature) *1* from *Phusis 2*.

Grounding Aristotle's Approach to the Nonrational

Aristotle's *Nicomachean Ethics* illustrates how one's account of human nature and flourishing can give pride of place to reason while offering a multi-faceted, rich picture of our psychic operations. In *On the Soul* (II 1–2), Aristotle distinguishes living from nonliving entities on account of the former's possession of soul. Further, he divides living things into basic types due to the kind of soul each has. The psychic capacities (*dunameis*) that Aristotle identifies (II 2–3) are (1) a nutritive faculty that enables growth and reproduction; (2) sense-perception; (3) desire; (4) locomotion;

and (5) rationality.[8] Possession of (1) distinguishes plants from natural, inanimate entities (e.g., fire), while (2)–(4) differentiate nonhuman animals from plants. As *On the Soul* (II 3) makes clear, the capacities are hierarchically arranged such that living things on a higher tier possess not merely their type's distinctive feature(s) but also any feature(s) characteristic of entities lower down. Thus, humans' distinctive capacity is rationality (cf. *Nicomachean Ethics* I 7), but they also possess abilities (1)–(4).

Early in the *Nicomachean Ethics*, Aristotle states that he will address the soul with flourishing (*eudaimonia*), specifically, in view (I 13, 1102a23–24). In keeping with that focus, the treatise attends substantially to the nonrational, specifically, emotion and desire. Though not intrinsically rational, they (unlike the nutritive capacity of all living things) are amenable to rational governance (1102b28–31) such that, in a morally virtuous person, "everything is in harmony with reason."[9]

In theory, reason can be dominant in ways that do or do not require harmony with what is other than it. The latter scenario obtains when rational governance involves the relentless, full subordination of the nonrational; based on the section "The Nonrational Is Misconstrued and Seriously Shortchanged," this seems to be the view of enhancement advocates. Aristotle's picture of admirable conduct and motivation, in contrast, requires harmony between reason and the nonrational (III 12, 1119b15–16). While both Aristotle (III 8, 12) and enhancement advocates recognize that faculties besides reason are inadequate guides to action on their own, only Aristotle sees that other faculties can yet be essential, not merely in the ordinary course of events but for *eudaimonia*. Thus, enhancement advocates' depreciatory lens on the nonrational as such is, at minimum, underdetermined by the evidence that they have provided thus far. This should be all the more concerning to them given recent findings in neuroscience and psychology that favor Aristotle by showing emotion and desire to figure importantly in moral motivation (McGeer 2008: 246–247).

Desire and Emotion United as Pathê

Pathos (plural, *pathê*) is Aristotle's collective term for emotion and desire. *Pathê* include appetitive desire, fear, anger, affection, longing, and pity, "and in general anything that is followed by pleasure or pain" (*Nicomachean Ethics* II 5, 1105b21–23). Together with capacities and characteristics, *pathê* comprise what exists in the soul (1105b20).

[8] Because Aristotle is a monist, "psychic" should not be construed disjunctively with "physical," or "biological." While he separates soul and body for analytic purposes, in terms of beings' actual existence, "we can dismiss as unnecessary the question whether the soul and the body are one: it is as though we were to ask whether the wax and its shape are one" (*On the Soul* 412b6–7; trans. Smith 1984 [line numbers are from the edition of Ross 1956]).

[9] Unless otherwise noted, translations of the *Nicomachean Ethics* are from Ostwald (1962), with certain adjustments; for the Greek, I use Bywater (1894).

Like enhancement advocates, Aristotle puts the nonrational, comprised of desire and emotion, under one collective head. But his account shows that doing so need not commit one to a sharp devaluing of the nonrational that would squeeze out the very possibility of psychic balance, rendering the notion itself unintelligible. For Aristotle, versus devotees of cognitive enhancement, deeming an aspect of us nonrational does not itself signify that the item thus labeled has nothing potentially fruitful to do with reason itself; in the case of *pathê*, "nonrational" picks out what is not intrinsically rational yet able to coordinate and collaborate with reason. In fact, though not rational in their own right, qua psychic phenomena, *pathê* "belong to humans no less than reason does" (III 1, 1111b1).[10]

Aristotle's Doctrine of the Mean and Notion of Psychic Balance

Aristotle's Doctrine of the Mean offers valuable guidance on how to differentiate among aspects and expressions of the human psyche in degree and kind. From start (I 6, 13, II 1–3) to finish (X 9), Aristotle's concern in the *Nicomachean Ethics* is not the sheer subordination, let alone extirpation, of our capabilities besides reason proper but attaining balance among them—crucially including harmony of aims.

Aristotle's view of *pathê* in relation to reason is elaborated through his Doctrine of the Mean, according to which "we can experience fear, confidence, desire, anger, pity, and generally any kind of pleasure and pain either too much or too little, and in either case not properly. But to experience all this at the right time, toward the right objects, toward the right people, for the right reason, and in the right manner—that is the mean and the best course, the one that is a mark of virtue" (II 6, 1106b18–23). Crucially, the mean comprising virtue "involves both *pathê* and actions" (b24–25). While sympathy and empathy per se are not listed, in terms of Aristotle's moral psychology, they belong under *pathê*.

Because the moral mean is categorically different from the arithmetical variety, ascertaining what conduct expresses that mean cannot be routinized but instead often requires fine-grained contextualization (II 6; see also I 6, II 2–3, 5–6, 9). As regards the nonrational, features of situations into which one might enter both impact whether one responds and help to calibrate one's response under the pertinent head (e.g., anger, fear); regarding the latter, the issue for Aristotle is not simply what reactions are morally permissible but which ones, particularly involving emotion, may be morally required (see further the subsection "Strong Emotional Responses Can Be Morally Required").

Cognitive enhancement would decimate the very possibility of subtle calibration, for, per advocates, the preeminent rational preference involving the psychic domain just *is* for greater rational capacity. Seen from within Aristotle's own rational essentialism, in contrast, this preference is not rational because, if acted upon, it would throw off a delicate and important balance among multiple facets of who we

[10] My translation.

are. According to Bostrom (2009: 130), Aristotle's rational essentialism "is plainly not a promising objection to [Bostrom's own transhumanist vision] since it would be perfectly possible for a posthuman to realize a telos of rationality as well as a human being could. In fact, if what is good for us is to develop and exercise our rational nature, this implies that it would be good for us to become posthumans with appropriately enhanced cognitive capacities." Bostrom's confidence is misplaced since, for Aristotle, augmented rational ability is not a goal in its own right. Instead, that capacity is meaningful only when actualized and instantiated in light of a rich, articulated notion of flourishing that is the ultimate telos, or "that for the sake of which" (*hou heneka*), of everything we humans do.

My point here is not that enhancement advocates must adopt Aristotle's own, virtue-based, account of *eudaimonia*. Rather, I wish to reinforce the point that their rational essentialism is only distantly related to his and to emphasize, by drawing on him, that rational capacity itself is bereft of meaning (and potentially quite dangerous) in the absence of a conception of the "why" whose content one expressly formulates and defends. Yet, far from doing this, advocates treat their non-provision of such as an asset of their accounts (see, e.g., Savulescu and Kahane 2011; Schaefer et al. 2014).

Further, rather than speaking of "rationality" simpliciter, as do enhancement advocates, Aristotle identifies and interrelates contemplative, or theoretical, and practical varieties. Why might this matter? As we saw in the section "What Is Cognitive Enhancement?" Savulescu (2005: 38) ties "rationality" to "our capacity to make normative judgements." Reference to Aristotle suggests that what advocates of cognitive enhancement propose would minimize and perhaps eliminate our ability to make those judgments. For him, moral expertise requires exemplary attainment in both types of reason: Not only is there "no practical rationality [i.e., *phronêsis*] … without the virtues of character" (MacIntyre 1988: 136), but both are entwined with virtuous agents' contemplative grasp of human flourishing and specific universals such as courage (Sorabji 1980: 205, 207; *Nicomachean Ethics* 1151a16–17).

Even where there is overlap between portrayals of reason by Aristotle and advocates of cognitive enhancement, there are salient differences. To illustrate: adeptness in stepwise reasoning is important for both (Schaefer et al. 2014; *Nicomachean Ethics* VI 7), but only Aristotle sees clearly that this facility is not valuable in a vacuum but instead proves its mettle in applications that call for marked contextual attunement. Further, reason, whether theoretical or practical, is insufficient to produce activity; for this, desire is always required (*On the Soul* III 10).

Balance, or harmony, exists only in relationships, ones in which all salient threads are suitably aligned. Aristotle's Doctrine of the Mean is a powerful and enduring illustration of such a position. When, in contrast, a view stipulates that threads are to be kept wholly separate, this is normally because its partisans deem one or more of these inferior such that they can overpower or pollute the superior factor. But what if a capacity of which it is stipulated, "Keep it separate because it is fundamentally superior," depends for its richest manifestations on a version of what—here, something nonrational—one believes it must be kept rigidly separated from? Aristotle's handling of anger, to which I now turn, shows what an embrace of enhancement supporters' agenda stands to jeopardize with regard to future children.

Strong Emotional Responses Can Be Morally Required

For Aristotle, unlike enhancement supporters, strong emotional responses are sometimes not just allowed but morally requisite. Given its importance both to advocates of cognitive enhancement (see the section "The Nonrational Is Misconstrued and Seriously Shortchanged") and to him, anger offers a good case study. For Aristotle, unlike Savulescu and Kahane (2009), "our condition in relation to anger is [not] bad" simply because the anger is strong (*Nicomachean Ethics* II 5, 1105b26–27). Instead, we err "if our anger is either too violent or not violent enough. … A man does not receive praise for being frightened or angry, nor blame for being angry pure and simple, but for being angry in a certain way" (1105b27–1106a1). Of course, getting angry as such is no achievement (1106a2–3; II 9, 1109a26–27), but evincing anger "to the right person, to the right extent, at the right time, for the right reason, and in the right way is no longer something easy. … It is for this reason that good conduct is rare, praiseworthy, and noble" (1109a28–30).[11]

What is more, "in some cases we must (*dei*) be angry" (III 1, 1111a30–31). "Not being driven by emotion" (IV 5, 1125b34–35) thus does not mean avoiding strong responses involving emotions simply because, for instance, those not well poised to judge might condemn them as excessive. Quite the opposite, for not just excess but "deficiency … receives blame. For those who do not show anger at things that ought to arouse anger are regarded as fools; so, too, if they do not show anger in the right way, at the right time, or toward the right person" (1126a3–6). On Urmson's (1980: 161) useful elucidation of Aristotle's view, one

> whose character is such that he feels only mild annoyance at a trivial slight and is enraged by torture has a character that is in a mean between one that exhibits rage on trivial as well as important occasions and one that can coolly contemplate the greatest outrages. … To diverge from the mean in the direction of deficiency is as much not to experience and exhibit emotions at all when one should, or not about matters about which one should, or not toward people toward whom one should as it is to exhibit the emotions to the wrong degree.

Considering the matter against the backdrop of Aristotle's view, one risk of our going full steam ahead with cognitive enhancement is that we may edit out of existence in future children the very capacity for powerful, justified anger at injustices, including inequities in access to resources and opportunities that would themselves likely be intensified by cognitive enhancement measures. We also stand to jeopardize the possibility of deep friendship, where the parties "become better people as they are active together and correct one another" (*Nicomachean Ethics* IX 12, 1172a11–12; cf. VIII 8, 1159b6–7), insofar as strong anger can be not only permitted but downright called for by the nature of that tie. An eventual exclusion of the nonrational could well encompass desire and pleasure, too, which Aristotle closely relates as motivators and measures of agents' standing and actions' moral worth.

[11] This is not to say that any and all acts and responses may at times be appropriate, for, as MacIntyre (1988: 121) observes, on Aristotle's account (II 6), certain acts (e.g., adultery) and responses (e.g., *Schadenfreude*) are categorically precluded.

The Moral Richness and Import of Desire and Pleasure

Though far from being a hedonist, Aristotle foregrounds the import of pleasure and pain well beyond a focus on them as direct indicators that something is appetitively desirable or the opposite: "Pleasure and pain are a consequence of every emotion and of every action. … [Thus] virtue has to do with pleasures and pains" (II 3, 1104b14–16). Further, pleasure is not merely an experiential consequent, for Aristotle identifies "the noble, the useful, and the pleasant" as the motivators of decision and choice (b31). Pleasure itself is not condemned; rather, moral assessment of its presence in any situation depends on "whether we feel joy and pain in the right or the wrong way" (1105a7).[12]

Further, "an activity is increased by the pleasure proper to it. … Each activity determines its own proper pleasure. The pleasure proper to a morally good activity is good, and that proper to a bad activity is bad" (X 5, 1175a30–31, b26–28). The same situation obtains with desire (b28–29; VI 2, 1139a29–31). Through observations such as these, Aristotle points to the moral complexity and import of the noncognitive qua desire and thus pleasure.[13]

The constricted vision of enhancement supporters regarding desire (and so-called negative emotion) is closely related to their conflation of two senses of "nature" (*phusis*), which is where their divergence from Aristotle involving the human comes to a head.

Phusis *(Nature)* 1 *Carefully Distinguished from* Phusis 2

Aristotle pointedly differentiates between what I call here *Phusis 1* (potentiality)—"nature" qua a capacity not yet developed or defectively so—and *Phusis 2* (actuality): "nature" in the sense of a well-developed ability that is actively deployed.[14] One can oppose his picture to the rational essentialism of enhancement advocates, where a *Phusis 1*-notion of the nonrational appears to exhaust that dimension of us. Their *Phusis 1*-view of the nonrational is coupled with a vague *Phusis 2*-lens on

[12] Aristotle illustrates this scenario via the character of Neoptolemus in Sophocles' tragedy *Philoctetes* (VII 2, 9).

[13] Unlike Aristotle, Schaefer et al. (2014) leave unaddressed the question of whether they view pleasure in lockstep with desire or in some other, perhaps more flattering, way.

[14] When arguing that technological enhancement is needed, whose provision would allegedly help people become virtuous in the vein of Aristotle, Fröding (2011: 226, 231) does not take adequate account of *Phusis 2*'s distinctness from *Phusis 1*. For fine-grained consideration of the distinctions involved in *Phusis 1* and *Phusis 2*, see *Nicomachean Ethics* I 7, II 1–2, VI 8, 11–13, X 6; *On the Soul* II 5.

rationality that comprises a heightening of capacity, in principle limitless, apart from any substantive notion of worthwhile aims (cf. Levin 2016: 61–62).[15]

When they denigrate the nonrational, enhancement advocates fail to distinguish adequately between "nature" by potential versus in actuality. As Aristotle observes, "the end that appears [good] to a particular person … is not simply given to him by nature but is to some extent due to himself" (*Nicomachean Ethics* III 5, 1114b16–17; see also II 1, 5). Thus, the goal one sets for oneself matters greatly. For Aristotle, the pinnacle of rational attainment is the actively virtuous existence in which flourishing consists. Said existence represents the culmination of a protracted development from *Phusis 1* to *Phusis 2*, where the virtuous capacity we have on account of our humanness has been developed into "virtue in the full sense" (VI 13, 1144b14; cf. b16–21).[16] Over and above the sustained cultivation of virtuous characteristics, "virtue in the full sense" requires our enactment of those features: Otherwise, one who possessed virtuous characteristics (*hexeis*) could be said to flourish even if he was "inactive all his life" (I 5, 1095b33). Aristotle rejects this view: "Just as the crown at the Olympic Games is not awarded to the most beautiful and the strongest but to the participants in the contests … so the good and noble things in life are won by those who act rightly" (I 8, 1099a3–7).

By Aristotle's lights, enhancement supporters' claim about the nonrational as disruptive applies only to cases where self-discipline is sorely lacking, that is to say, where attainment is remote even from a well-developed virtuous capacity. Advocates seem to presume that humans just *are* akratic,[17] whereas, for Aristotle, what they reject simply reflects *Phusis 1*, namely, it falls under the head of human potential un- or deficiently realized. The picture of enhancement supporters thus ignores a salient distinction, drawn by Aristotle, between morally strong (enkratic) and morally weak (akratic) persons: It is to the latter alone that "we must attribute … a condition similar to that of men who are asleep, mad, or drunk" (VII 3, 1147a17–18).

Further, surpassing moral strength is self-control proper (i.e., the virtue of *sôphrosunê*), whose possessor does not merely do what is morally required but desires to do so and enjoys acting thus. Because advocates of vigorous enhancement fail to demarcate *Phusis 1* from *Phusis 2*, they presume identified flaws to reflect humanity as such, and this, in turn, renders the idea of a coming-to-fruition from within the human itself a nonstarter.

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[15] The same criticism applies where transhumanists emphasize artificial intelligence instead of genetics (see Levin forthcoming).

[16] On Aristotle's broader formulation of the point in the *Physics*, *Phusis 2* "is the end or that for the sake of which (*telos kai hou heneka*)" (II 2, 194a28)—the end being "what is best (*beltiston*)" (II 3, 195a24; trans. Hardie and Gaye 1984 [line numbers are those of Ross 1950]).

[17] On Aristotle's account (*Nicomachean Ethics* VII 4), *akrasia* applies to *pathê* generally, not only to appetitive desire. Schaefer and Savulescu (2016) appear to concede indirectly that cognitive enhancement alone may not handle *akrasia* when, having singled out the moral "useful[ness]" of "logical competence" (4), they grant that "akrasia reduction was not included in our present framework … because it does not easily fit with our focus on judgments" (4n5).

What is more, enhancement supporters' praise of augmented sociality notwithstanding, Aristotle's *Phusis 1–Phusis 2* composite requires ties to others of the sort that their accounts cannot obviously accommodate and may preclude. For Aristotle, flourishing—indeed, the very possibility of our reaching *Phusis 2*—necessitates a rich communal setting (*Politics* I 2 [Ross 1957]; *Nicomachean Ethics* VIII–IX, X 9). Interpersonally, friendship (*philia*) is essential to a virtuous life (*Nicomachean Ethics* VIII 1), for "a man of high moral standards will need people to whom he can do good" (IX 9, 1169b13). An active mutuality importantly distinguishes *philia* from mere good will (*eunoia*; IX 5, 12). Such is this mutuality that the parties' contributions are not neatly differentiable, occurring in a context where what happens is often meaningful only if one takes the specifics of that relationship into account.

Enhancement advocates identify what the heightening of cognitive ability would supposedly eliminate from human connections (see, e.g., Schaefer et al. 2014). But they leave it unclear how others would necessarily matter in a fruitful way if dramatic cognitive enhancement, alongside the profound diminishment or elimination of our biological frailty, enabled us to approach the self-sufficiency whose prospective attainment enhancement supporters often esteem. We can see more readily how we (or our successors) would be far less entwined with others than most of us could fathom. To that extent, in antiquity, enhancement supporters' view fits best with that of the Stoics (Diogenes Laertius, *Life of Zeno* [Hicks 1931]; Epictetus, *Encheiridion* [White 1983]), who condemn strong emotional responses—from anger and grief through love—as such, distinguishing them from "good emotions" (*eupathê*; *Life of Zeno*, VII 116–19). The latter are not directed toward individuals but rather to humans in aggregate or, at their most specific, toward others based on their roles in relation to us (e.g., filial respect, owed by children to their parents due to the latter's function as such; *Encheiridion* 30). Because these responses are tepid and generic, what makes *eupathê emotional* responses for Stoics is elusive. Something in this vein is what "augmented" sociality might look like if robust cognitive enhancement were pursued.

Where Do We Go from Here?

The foregoing assessment of arguments for cognitive enhancement, both directly and through the lens of Aristotle's thought, problematizes the notion of heightening "rationality" as far as technically possible apart from (1) the nonrational and (2) an express commitment to substantive views of the values and aims that rationality is intended to serve. These two factors are strongly connected, for one cannot distinguish justified from unwarranted manifestations of psychic capacities like anger if one lacks meaningful notions of the good, just, and so on (on the imperative to investigate these, see Jotterand 2011: 5, 7–8). Absent these notions, how could one articulate and defend violations of the norms represented thereby?

Advocates of cognitive enhancement do not provide the requisite accounts, nor is it evident how, as things stand, they could. For doing so would require toning

down if not abandoning their "overlapping consensus" approach (Schaefer et al. 2014; Savulescu and Kahane 2009) when trying to convince critics that there is more common ground than meets the eye between their core values and advocates' own. That approach gets going only if one severs constructions of concepts like rationality, autonomy, and virtue from the theoretical settings—centrally including views of worthwhile aims—within which they have their distinctive meanings. In this process, inevitably, the operative notions will be watered down. The views of enhancement supporters are of course no exception here, being anchored firmly in commitments that inevitably recede from center stage when they seek to highlight what they claim to be shared terrain (on this topic, see also Levin 2016: 60, 62).

As MacIntyre (1988) reminds us, we cannot discuss goods or rationality in a vacuum, for there just *are* bedrock divergences. Further, "disagreements between fundamental standpoints are in key part over how to characterize those disagreements. There is … no neutral mode of stating the problem, let alone the solutions" (144). This means, crucially, that "[p]rogress in rationality is achieved only from a point of view" (ibid.).

Thus, the perspective we adopt on rationality and its ties to the nonrational will markedly impact the future, including the moral standards by which decisions about progeny-to-be will be assessed. Because, under the highly controversial terms of PB, enhancement would itself be morally required, the stakes could not be higher.[18] Once the veil and refuge of "overlapping consensus" are removed, advocates are faced squarely with the tough challenge of defending their controversial and problematic views about cognition and the noncognitive, several of whose shortcomings I have illuminated here.

The matter of where enhancement advocates and their "conservative" critics *do* concur is best approached apart from the distortional frame of overlapping consensus. Here are two such points: "we need to form reasonable opinions on difficult questions about the nature of well-being and the good life" (Savulescu and Kahane 2009: 289), and "[u]nless we begin to understand what is good and ought to be promoted and what is bad and ought to be prevented, we will be in no position to evaluate [the] rapidly advancing scientific possibilities" (Savulescu 2003: 25). These statements imply broad concurrence with Aristotle that nothing can be a meaningful, guiding aim—or "that for the sake of which"—if it is merely a *placeholder* for whatever content one with radically heightened cognitive ability might give it.

For our own and our children's sakes, such statements by enhancement supporters of the need to articulate substantive notions of "well-being and the good life" must not remain unfulfilled promissory notes. The question we should address more concertedly is, for the sake of what, if anything, could the pursuit of vigorous cognitive enhancement be justified? Because the controversy over enhancement is ultimately about values as reflected in aspirations and ideals, reframing the debate to foreground this fact would itself be a marked advance. We need not endorse the particulars of Aristotle's stance. But in this enterprise of recasting, his nuanced handling of

[18] See further Levin (2016).

the nonrational in relation to reason is well worth bearing in mind. In addition, his *Nicomachean Ethics* vividly reminds us that no capacity of ours is meaningful unless it is framed, developed, and enacted in light of a rich notion of individual and communal flourishing that is the ultimate telos, or reference point, of all we humans do.

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