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Towards an Existentialist Neuroethics

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Towards an Existentialist Neuroethics

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Abstract

This paper is situated at the intersection of science-fiction literature, existentialist philosophy, and neuroethics—and it amounts to a novel challenge to an implicit neuroessentialism that in large part characterises the field of neuroethics. It begins by examining a character by the name of Peer found in science-fiction writer Greg Egan's well known and award winning novel *Permutation City*. The sub-story of Peer presents a technologically updated image of the Sisyphean metaphor made famous in the existentialist writings of Albert Camus. Although Peer and Sisyphus, in one sense, seem to occupy separate ends on the continuum of freedom, there remains a sense in which both of their stories point to the role of constraints in shaping our ethical agency as well as the inescapability of subjective (moral) choice. Insights drawn from the wide-open imaginative space made possible in the character Peer's malleable virtual world and personal subjectivity lead to a consideration of relevant aspects of ethical subjectivity that are underrepresented (if represented at all) in neuroethical theory. In short, these considerations have to do with ethical subjectivity itself, and the scope of moral freedom. In the end, it is proposed that neuroethical theory be broadened to accommodate concerns about the impact of neuroscientific modifications to the ethical subjectivity of agents. This existentialist turn, while remaining thoroughly natural, eschews an overly simplistic approach to ethical theorizing that is characteristic of reductive neuroessentialism.

Keywords

Neuroethics, Existentialism, Subjectivity, Greg Egan, Neuroessentialism, Sisyphus, Agency

Introduction

Neuroethics, according to Adina Roskies (2002), can be characterized as dealing primarily with two sorts of problems or as having roughly proceeded along two general trajectories. She calls these 'the ethics of neuroscience,' and 'the neuroscience of ethics.' The first includes considerations about whether or not a given neuroscientific research program, in both its design and application, conform to certain ethical standards, as well as an examination of the foreseeable potential legal, ethical, and social impacts of such a proposed study's findings. The other concerns how we may come to understand the operation of traditional ethical notions like value, volition, intention, self-control, freedom of the will, *et cetera*, by way of neuroscientifically studying the functioning of the brain in relevant contexts. This type of research aims to examine, for example, things like how moral values are represented in the brain, whether or not—in terms of brain function—there are any differences between moral and non-moral decision making

processes, and in what ways neuronal activity might underlie ethical agency. Later in the same article, following a comment about the openness and appropriateness of the term 'neuroethics' for this burgeoning field of study, Roskies claims that "We should not merely pay lip-service to this inclusiveness. Neuroethics has the potential to be an interdisciplinary field with wide-ranging effects" (23).[1] But despite this proclaimed openness to a variety of disciplines and backgrounds from which to engage and assess both the ways that neuroscientific research projects are developed, implemented, and socially integrated as well as the impacts that such research may have in terms of revisions of traditional ethical notions and theories—all in the service of developing a mature, comprehensive, integrated, and responsible neuroethics—Roskies nevertheless declares that, "Many of us overtly or covertly believe in a kind of 'neuroessentialism,' that our brains define who we are, even more than do our genes" (22).[2] But if we take Roskies to be correct in her characterization of the field, and her observation of one of its central implicit (or often explicit) guiding assumptions (*viz*. neuroessentialism), a tension can be seen to arise between the claim to genuine interdisciplinary openness, and a prevailing sort of reductionism that may threaten to exclude difficult or opposing views right at the very outset.[3]

One of the worries with placing such a neuroessentialist view at the foundation of the neuroethical project is this: if we begin with the assumption that our experience and personal identity can be unproblematically reduced to mere neuronal activity, then we may likewise think that the sorts of ethical deliberations we engage in and judgements we make, as well as the entire edifice of our moral agency can similarly be reduced to the bare mechanistic operation of neurons. We might then even be persuaded to treat value itself as ultimately reducible to the behaviour of neurons.[4] It is in this way that the 'ethics' of 'neuroethics' becomes subordinate to the 'neuro.' One of the problems associated with this sort of view, as Racine notes, is that it appears to "…commit the naturalistic fallacy and threaten[s] to reduce the normative dimension of bioethics [or neuroethics] to biological [or neurological] imperatives" (2010, 55). Another of the

1. See Racine (2010) for a more recent endorsement and defense of the interdisciplinarity of field.

2. For proponents of the neuroessentialist view see for example, Gazzaniga (2005), and Churchland (2006). For challenges to the reductive neuroessentialist view see for example, Morse (2006), and Buller (2006).

3. For more on neuroessentialism, its problems, and its alternatives, see Racine (2010), and Illes (2006).

4. And this is something that, at the very least, value realists would outright reject (see for example, Nagel's (2012) "Mind & Cosmos").

dangers of allowing this to happen is that we may then be left with an insufficiently nuanced and facile treatment of the role of ethics in this joint area of research. It is my contention that such an unbalanced state of affairs would leave much to be desired when it comes to developing a mature, inclusive, and comprehensive view of neuroethics. And therefore, in this paper, I intend to broaden the ethical scope of neuroethics in a way that challenges the general presumption of neuroessentialist exclusivity and begins to put into practice the sort of broad based inclusivity of various disciplines called for by Roskies. To accomplish this, I will draw upon insights gleaned from science-fiction as well as existentialist literature so as to reveal a lack in current neuroethical theorizing that, when given sufficient attention, allows us to resist the sort of dominating influence of the type of reductionism identified above. Central to this challenge is the notion of the ethical subject and the ways in which neuro-modification or manipulation may impact and undermine the subject *qua* ethical subject.

In terms of layout, the paper contains the following main sections: 1) I will provide some background on Greg Egan's award winning science-fiction novel *Permutation City* and the sub-story of the character named Peer which will serve as my example of the value of the imaginative contributions that sci-fi may present for neuroethics and ethical theory in general; 2) I will relate the example of Peer to the earlier existentialist consideration of the myth of Sisyphus by Camus, as well as present a further analysis rooted in existentialist thought; 3) I will examine what new sorts of existentialist issues we are faced with when we consider how the example connects with neuroethics and the ways in which neuroscience may impact the ethical subject; 4) I will present some concluding comments about how such an existentialist take on ethics resists the sort of reductionism implied by neuroessentialism and why such considerations deserve to be part of the neuroethics discussion.

1. The Irreducibility of Subjectivity in *Permutation City*

Greg Egan's (1994) novel *Permutation City* presents a bifurcated picture of the world in the mid-twenty-first-century. Although the story focuses upon the lives of several fully subjective digital 'copies' of wealthy flesh and blood people who were able to afford entry and are now contained within a virtual reality world,[5] that world is not entirely disconnected from the economic forces still at play within the natural world and the computing power that must be generated there to sustain their virtual existence.

5. Each of whom, we may presume, would have flatly rejected Nozick's (1974) arguments against plugging into "the experience machine."

This virtual world, like our own, remains economically stratified with the less wealthy copies running at a slower rate than the copies of other more affluent individuals, but the impacts of climate change on the natural world threaten all of the virtual reality world inhabitants the same, since the global computing power upon which they subsist has begun to be diverted by the natural world needs of extreme weather tracking and predicting. This state of affairs provides a snapshot of the background context in which we encounter the sub-story of the character named Peer that I will examine and use as an example from which to draw insights for later arguments and reflections.

One thing to note from the outset, in this story, is that it is clear that Egan adopts a functionalist and reductivist view of not only consciousness, but also subjectivity. In other words, it is not merely conscious thought and experience that is first biologically and then functionally reducible, and therefore, amenable to computational reproduction for Egan, but a subjective sense of self that is able to maintain some sort of integration or unity and continuity that may also be reproduced within the story. The important point about this reductive view of consciousness and subjectivity for Egan, his character Peer, and indeed for us as well, is that it allows for a vision of consciousness and subjectivity that is fully expressible in terms of Turing computability or mechanical relations. That is to say, Peer's virtual-world subjectivity is nothing over and above the mechanistic or computable information-packet transitions that simultaneously constrain and represent it. Indeed, as Farnell (2000) notes, "The reductionist rhetoric of neuro-cyber symbiosis reveals a return to the Cartesian AI notion of 'mind as computation'…that erases the phenomenological model of mind, body, and world" (72). But one of the interesting consequences of adopting this idea as genuinely possible, is that it allows for an imaginative space in which the author (and readers) may explore and examine some of the various ways in which the character Peer can have his subjectivity modified or that he can change and restructure his subjectivity himself—and in the story, as Burnham (2014) notes, this is precisely what he does, by having "…embarked on a grand experiment of self-editing—making it easy to pass time by programming himself to enjoy all sorts of repetitive tasks" (87). Indeed, when we first encounter the virtual reality copy and character named Peer in Egan's story, we find him scaling down from an infinitely tall building towards an ever receding ground. As Egan tells us, "Peer knew he could keep on approaching the ground for as long as he liked, without ever reaching it. Hours, days, centuries" (1994/1998, 60). Peer's being a virtual reality copy in this particular virtual reality world means that he can both design the type of world in which he should want to live as well as the type of attitudes, moods, beliefs, and desires that he should have. In short, although Peer is running at a much slower rate than the more affluent inhabitants of this virtual world,

he is nevertheless his own god in a sense—he can create any sort of virtual reality world that he might desire, and he can even manipulate what sorts of desires and satisfactions he will experience within that world. Moreover, the slower refresh rate at which he must operate makes no subjective difference to his private experience as a computational or virtual copy—if he desired to, he could take a snapshot of his cognitive profile at any moment and freeze it for as long as he wished before resuming it without perceiving anything by way of lost subjective time. In fact, his entire cognitive apparatus as well as his subjective experience is completely within his own power to fashion as he sees fit. If he wants to edit out that embarrassing prom night experience that he had prior to becoming a virtual world copy, then he can simply delete that experience from his memory as well as any trace of the impact that such an experience might have had upon his emotional or cognitive states or dispositions.[6] In principle, he could even produce multiple copies of his digital self-consciousness profile to run simultaneously—the concept multiple subjective 'selves' being one that Egan explores here in the character of Paul Durham and in other novels as well.[7]

One of the fascinating things about the character Peer is that, despite this apparent complete freedom to both model his world and actively organize his own thought, mood, emotion, and experience in any conceivable way, Egan nevertheless chose to portray Peer as a modern-day techno-Sisyphus. Contrast this with the image of the original Sisyphean myth in which Sisyphus' fate of rolling a large rock up a hill only to have it roll back down for all eternity—a fate which is commonly taken to be the model of agonizing unfreedom—and a rather striking thematic reversal becomes apparent. But these two Sisyphean views are not only marked by this difference between complete freedom and a total lack thereof, they are also unified under a particular and prominent existential notion about choice. It seems that the earlier existential rendering of the myth of Sisyphus provided by Camus, in which he suggests that the existential challenge of the myth is that "One must imagine Sisyphus as happy" (1942/1988, 111) found a sympathetic ear in Egan who, early on in the story, claims that Peer is in fact "a happy Sisyphus" (61). But before saying anything more about the original myth or its existential analysis, I want to spend some time reflecting on the situation in which Peer finds himself in the story.

6. There is of course always the looming question with respect to personal identity about how much of one's self can be edited away before one is no longer the same self, but I will leave such questions to the side in this paper.

7. See for example his (1992) *Quarantine* as well as Hayles (2015) article on that work.

In one sense, the example presented by the sub-story of Peer seems to be situated at one rather extreme end of what we might take to be a spectrum of free agency in that, as mentioned, it more or less renders him a god within his virtual reality world—i.e. due to his ability to entirely craft the world of his own experience and the sort of self that he will have within it as well—whereas the natural world that we all inhabit imposes numerous constraints upon what we may experience and do. However, I don't think that the situation presented in the story is one that is very hard for most of us to at least imagine (which is to say nothing about whether or not we see the example as logically conceivable or metaphysically possible). By now, films like *The Matrix* and other similar science-fiction movies that presume consciousness and subjectivity to be reducible and electronically reproducible have become a part of the landscape of popular culture, and inventions like virtual reality helmets and thought controlled computer interfaces continue to make the fantastical imaginings of yesterday look like the obvious technology of tomorrow.[8] We also know that modifications to our cognitive and physical functioning afforded by modern neurosurgery, neuropsychopharmacology, and other neuroscientific advances have already allowed us to alter our experience of the world in striking ways.[9] So we can imagine being in Peer's virtual shoes, so to speak. This is why it is so curious that Egan chose to fashion Peer as a sort of Sisyphean character. Given that most readers could fairly easily accept the speculative ideas being made use of in the novel, and would likely want to explore far more exciting experiences in such an open landscape if granted the same sort of opportunity, readers are left to wonder why Egan opted to make Peer the image of repetitive drudgery. Perhaps Egan thought that repetitive activity was essential to maintaining some sense of connection to the prior flesh and blood human that the digital copy Peer once was—or at least, believed himself to be. Maybe we the readers of this story would struggle to identify with such a fantastically set subjectivity if it strayed too greatly from our own everyday sorts of subjective experience. But another potential reason for his opting to do so is that Egan recognised that the existential perspectives and questions of life will remain in any post-human future insofar as there exists some form of subjectivity or self-consciousness. As Heidegger suggests, our personal "Being is that which is an issue for every such entity" (1927/2008, 67). In other words, regardless of the context in which subjectivity manifests—be it organically or digitally—one's subjectivity is always a central concern or problem that a subject faces simply in virtue of being a

8. Granted, something like virtual consciousness or subjectivity still appears to be a rather far off dream.

9. See for example, Crockett *et al.*, 2015.

subject. Indeed, and this in part because, as Sartre claims, "Every conscious existence exists as consciousness of existing" (1943/1984, 13). For Peer, as for the rest of us, we must each ask ourselves what it is that makes our lives meaningful and worth living. And this is a question that the existentialists recognize we must all answer for ourselves.

The story of Peer is crafted such that, even with a virtually unlimited degree of freedom in which to shape himself and his environment—as well as what a given environment will mean to him once experienced from the inside—he nevertheless decides to adopt a Sisyphean life of consistent physical exertion at a single basic activity (i.e., scaling the building infinitely). We might think: how very human of the copy Peer to constrain his activity in this way. Let us not forget that Peer has complete authority over how he might feel or think about any of this—there is no danger that he will grow bored of this activity, such a possibility has been edited out of the cognitive script that he chose to adopt for himself. Likewise, there is no danger that old memories may interfere and distract him or lure him from his activity with the promise of something better or at least something different—the cognitive structures or patterns of activity that represent these too have been sectioned off from his self-selected model of himself. Indeed, he knows only how to be happy with the project that he has selected for himself regardless of what any of us may think of it. One of the salient features of Peer's paradise (as we might be wont to call it) is that the only constraints that he experiences are those that he has imposed upon himself. And those self-selected constraints are the only markers by which we can identify Peer as, in some way, human, or as the digital descendant of a human that retains something of its former flesh and blood self—even if that is now little more than a highly plastic, digital rendering of a particular neural architecture and its general activation patterns. Later on, I will have more to say about how it is that such constraints condition our experience of the world and shape our ethical subjectivity within it. Next, however, I would like to take a moment to consider Camus' existentialist understanding of the original myth of Sisyphus before examining how it connects with the story of Peer.

2. Camus' Sisyphus

As mentioned earlier, the original mythical story of Sisyphus is one of a man condemned by the gods to push a boulder up a hill only to have it roll back down to the bottom over and over again, for all time. According to Camus, the story of Sisyphus is standardly conceived of as the mythical metaphor of a repetitive, toiling, and apparently meaningless life. Indeed, he claims: "Sisyphus is the absurd hero. He is, as much through

his passions as through his torture. His scorn of the gods, his hatred of death, and his passion for life won him that unspeakable penalty in which the whole being is exerted toward accomplishing nothing" (1942/1988, 76). However, although Camus characterizes the fate of Sisyphus as being absurd, he nevertheless sees something heroic in Sisyphus that seems to be overlooked by the casual observer of the story. Pondering that pause between his having just rolled the rock up to the top of the hill and having to turn and retrieve it again from the bottom, Camus says:

> That hour like a breathing-space which returns as surely as his suffering, that is the hour of consciousness. At each of those moments when he leaves the heights and gradually sinks toward the lairs of the gods, he is superior to his fate. He is stronger than his rock. (76)

And it is the subjective sentiment of scorn that reveals the heroic strength of the Sisyphean love for life and hatred of death. Again, in the words of Camus, "The lucidity that was to constitute his torture at the same time crowns his victory. There is no fate that cannot be surmounted by scorn" (77). It is in this way that Camus characterizes the existential triumph of Sisyphus; who is at once driven by scorn to both defy the punishment of the gods and to overcome his fate by, in a sense, 'owning' that very fate and finding the joy of his subjectivity therein. The one thing that not even the gods have dominion over is his very subjectivity. As Camus says "His fate belongs to him. His rock is his thing" (78). This personal subjective recognition of one's life, in any form that it may take, is central to the existential perspective. Indeed, Sartre claims, in one of his most famous lectures on existentialism, that "As our point of departure there can be no other truth than this: *I think therefore I am*. This is the absolute truth of consciousness confronting itself" (1946/2007, 40).[10] It is a subjectivity that remains non-reducible because it is that which is ultimately free and that by which we may come to understand objects in the first place. This sort of radical freedom is also at the heart of an existentialist approach to ethics. Indeed, with respect to ethics, Sartre suggests that, the existentialist "…can will but one thing: freedom as the foundation of all values" (1946/2007, 48). Mirroring this view of the centrality of the importance of an ultimately free subjective choice is the personal perspective that Sisyphus adopts towards his fate in Camus' retelling of the story. In that version of the myth, Sisyphus' subjective acceptance

10. While this quote provides a rough and ready notion of Sartre's view of the nature of self-consciousness, he develops a much more thorough account in his (1943/1984) *Being and Nothingness* (see especially section 3 of the introduction).

of his existence is as freely chosen as the perspective that he may adopt toward any sort of life. And it is this same feature of subjective irreducibility that we find reflected in the character of Peer. On the one hand, we have Sisyphus, the model of the unfree labourer, who nevertheless triumphs over his fate by way of the freedom of his subjectivity; on the other, we have Peer, the model of absolute (or next to divine) freedom who happily chooses to narrow his activity to a single subjective project. In both cases, however, (i.e. the apparently unfree and the seemingly absolutely free) there remains a power to decide that, although conditioned by various constraints—in one case natural, in the other due to computing power—is not entirely constituted nor caused by them. This is one way in which the reductivist rendering of things in Egan's story might be seen to begin to unravel—it is one question just how much Peer may modify his cognition while still remaining Peer;[11] it is another to inquire into the difference between Peer and a program that performs the same functions while yet not amounting to a subjective being. I am concerned with this latter question. If the virtual world Peer is a genuinely self-conscious subject, his subjectivity is an issue for him. It is something that belongs to him as such a being and his choices must be made in light of being a subjective being. On the other hand, if the program that represents Peer is merely running through various transformations of digitally encoded information over time, then it is at best only *subject to* such transformations and never the *subject of* them. That is to say, *that sort of Peer* entirely lacks such subjective choice.

3. Existential Implications for Neuroethics

What is perhaps most compelling about the example of Peer and the existentialist lens through which we can interpret the story, is how it gives shape to what we may call the ethical subject[12], and how changes to the ethical subject matter to neuroethics. I see the notion of the ethical subject as, in a sense, partially falling in between what Roskies categorized as the "ethics of neuroscience" and "the neuroscience of ethics." As mentioned, for Roskies, the ethics of neuroscience is concerned with "the ethical issues and considerations that should be raised in the course of designing and executing neuroscientific studies and [an] evaluation of the ethical and social impact that the

11. This question of the limits of modification and personal identity is raised at the end of Egan's novel in the character of Paul Durham (1994/1998, 307), and is examined further in Farnell (2000).

12. My understanding of the notion of the ethical subject is in large part congruent with Simon Critchley's (2012) proposal but I will not elaborate on what is entailed by that view here. See his entry in references for further clarification.

results of those studies might have or ought to have on existing social, ethical, and legal structures" (2002, 21). Whereas she sees the neuroscience of ethics as the investigation of traditional ethical notions such as free-will, self-control, personal identity, intentionality *et cetera*, in terms of brain functions. She maintains that the neuroscience of ethics can be framed in terms of questions like: "How are decisions made in the brain?" and "How are ethical decisions similar or different from other types of decisions?" (2002, 22). As noted, this latter approach is, Roskies admits, if not explicitly, then at least typically implicitly sustained by a sort of reductive neuroessentialism, or the view that it is in fact our brains that entirely determine the choices that we make and the sorts of persons that we are. And this is one space in which I think that the example of Peer and the existentialist perspective has something to contribute to the project of neuroethics—if not by directly challenging certain fundamental assumptions of the field, then at least by cautioning the discipline against an overly simple way of approaching ethics.

Adopting an existentialist perspective when considering the standard terrain of neuroethics certainly problematizes things, but it also affords us an opportunity to re-examine certain basic commitments and assumptions and to identify certain subtle concerns that may otherwise be overlooked. With respect to Roskies' first category of the 'ethics of neuroscience', the existentialist view (as I will refer to it)[13] reminds us here that ethical actions are not simply a matter of plotting the costs and benefits of some neuroscientific study against the predefined structures of a deontological, or utilitarian, or virtue ethical list of do's and don'ts. Instead, genuine and authentic moral behaviour is something chosen by an engaged subject who is responsible for the selected behaviour. As something subjectively and irreducibly chosen, ethical behaviour cannot be entirely captured calculatively and mechanically—this reminds the researcher, for instance, that, as a subject herself, she remains responsible for the types of projects that she decides to undertake regardless of the operational norms of the discipline or society at large, and that ethical action is about more than the mere application of and adherence to a given codified list of prescriptions and proscriptions. Indeed, it remains always, first and foremost, a responding to the ethical demand *by* and *as* a subject.

13. By my use of the phrase 'the existentialist view' I do not mean to imply that my particular reading of existentialist literature is perfectly doctrinaire or that there is a single existentialist view to be appealed to. Rather, my take on the existentialist view presented in this paper reflects something of the widely examined dominant themes of much existentialist literature; themes like radical freedom, subjectivity, thrownness, *et cetera*.

In terms of Roskies second category of 'the neuroscience of ethics', the existentialist view appears to stand in direct conflict with the reductive 'neuroessentialism' of this approach. But it should be mentioned here that the existentialist view does not necessarily deny the hard facts of the world (or of science)—instead, it reminds us that even such facts are first interpreted by a subject and thus, our understanding of our own subjective decisions are at least on par with the determinations of the sciences.[14] But I don't now intend to defend the existentialist view from a form of reductive materialism. Instead, I want to use the example of Peer, cast in a certain existentialist light to draw attention to a perspective that I take to be relevant to—and commonly overlooked by—neuroethical theorizing.

There are two central aspects of an existentialist view of ethics that I want to highlight. First, is the notion of freedom as one of the primary and yet ungrounded values of the existentialist view[15]; second, is the notion that the ethical context is one in which the ethical subject is responsive to and experiences a certain ethical demand. This ethical demand can also be characterized in terms of something making a claim upon the subject or the subject experiencing a particular type of behavioural constraint.

Imagine, for example, that you encounter a person physically harming a child. In this situation, it is the child's defencelessness, and experienced harm that calls on you to intervene and put an end to the abuse. Another way of thinking of this sort of situation is to frame it in terms of ethical constraints. You remain free to either respond ethically and intervene, in order to stop the abuse, or you may also choose to ignore the child's plea and carry on with your own affairs—failure to respond here being something that you are responsible for, and something that merits reproach or moral condemnation. The ethical constraint presents itself to you (the ethical subject) as a demand or request for intervention and authentic engagement in the moment; regardless of whatever ethical system you might generally endorse (if any). The experiential landscapes of our ethical lives are constrained by innumerable such ethical demands by others (some much more benign, and some even more troubling). The homeless person who asks: "Will you provide me with something to eat?" The oppressed peoples who ask: "Will you protect us from further violence?" The worker who asks: "Will you pay me a living wage that I may

14. It is also important to note that subjectivity and personal agency, from an existentialist point of view, do not require any form of supernatural or substance dualist intervention in the natural world.

15. The importance of the notion of radical freedom to the existentialist works of Jean-Paul Sartre, for example, can hardly be overstated—and central to that notion is the view that "subjectivity must be our point of departure" (1946/2007, 20).

care for my children?" These and many other demands extend beyond the personal to the social, the ecological, and other domains: "Will you stand with the people, for economic, social, and political equality?"; "Will you protect wildlife from extinction?"; "Will you act to spare the next generation from the consequences of climate change?" and so on.

But let us now return to the example of Peer. As mentioned, Peer lives in a world of his own creating and experiences a subjectivity that is constrained in a self-selected way. This apparent absolute freedom to self-organize and to re-organize self may present itself as a post-human fantasy but it has a clear implication for how we are to understand what it is to live ethically. Although Peer's virtual world activity is constrained to something all too human (*viz*. a repetitive pattern of physical behaviour), in his virtual world, he faces none of the ethical demands that we regularly encounter in the natural world. There is no environmental constraint the likes of which calls upon him to act in one way over another. The constraints under which he lives are merely procedural, and they affect no one other than himself. The fact that his solipsistic existence is connected to a larger natural world that is suffering various economic and ecological crises is something that Peer has simply 'edited out' of his cognition. But this sort of editing out of larger experience is a serious ethical worry that carries over into the more modest interventions of modern day neurosurgery and neuroscientific modifications of cognitive functioning. Within his solipsistic world, Peer appears not as immoral but rather, simply amoral—i.e. the notion of ethical conduct simply doesn't seem to apply to the sort of being that Peer supposedly is, in the sort of world in which he resides. However, if we take the broader perspective of his absence from the natural world into account, it becomes apparent that his opting to retreat from the ethical demands of his time and place in the natural world to be a complete abnegation of his ethical responsibility—and insofar as his restructuring of his digital neuro-architecture is aimed at eliminating his *freedom to respond* to the ethical demands of the larger world, it too is deeply immoral. It is immoral both in the sense that it restricts his ability to respond to various ethical demands and in the sense that it destroys the scope of his very subjectivity—the former amounting to a limitation on the social or relational aspect of his ability to respond ethically, and the latter being a limitation on the sort or ethical subject that Peer could otherwise be. And to me, this sort of minimizing of the scope of one's ethical subjectivity is already a problematic feature of the way in which human beings modify their cognitive functioning—either by way of neuropsychopharmacology, neurosurgery, or otherwise—that neuroethics ought to be both cognizant of and engage with more substantively.

Allow me to illustrate the worry as I see it. I may, for instance, be depressed and distressed by having, for example, witnessed the unjust and violent oppression of a

given group of people by the state, but taking a little blue pill will effectively modify my brain function such as to alleviate my depression and leave me feeling unmoved by such concerns. I might likewise feel anxious about confronting a misogynist employer regarding his treatment of women workers, but some other neuro-chemical fix might permit me to look the other way with minimal discomfort, and so on. But such modifications to my subjectivity take something important away from me. These interventions remove from me my ability to be fully present, and engaged by the ethical constraints that the world presents me with. Indeed, this sort of "cosmetic pharmacology" as Peter Kramer (1993/1997) dubs it, alters in a deep and abiding way the very ethical subject that I am or that I would otherwise be, warts and all. By decreasing or eliminating my ability to be sensitive and receptive to the ethical constraints or demands of regular life, such modifications undermine my subjectivity and my freedom to become the kind of ethical agent I might otherwise have the chance to be. Therefore, I see the task of neuroethics not only as, for example, identifying those operations or modifications of the subject that are unethical because they come at too great a risk or cost to a particular patient, or society, or to some other dimension of the patient's quality of life or what have you; but also as coming to terms with the more subtle ways in which treatments, therapies, and cognitive modifications may function to undermine or excise portions of the agent's very ethical subjectivity itself in ways that may result in a *narrower sensitivity* to the ethical demands that the agent is presented with in the world.

But reflection upon such considerations does not always present careful researchers with obvious answers. Take, for instance, the following example: an American veteran of the Iraq war suffers from post-traumatic stress disorder (PTSD) as a consequence of his having survived a road side bomb attack which killed several of his fellow soldiers during his tour of duty. The personality changes and anxiety attacks that result from his PTSD while both deeply impeding his ability to function well socially and in the civilian workforce nevertheless provide him with the impetus to reflect upon the horrors of war and to commit to writing a memoir that exposes some of the atrocities in which he had taken part as an ethically motivated gesture of atonement.

On the one hand, you have the soldier's anxiety and personality issues which are causing trouble for him in his daily social interactions and work life. And here it seems that any neuropsychopharmacological or other neuroscientific treatment that enables the soldier to better navigate his day to day life is to be desired. The apparent benefits here being that he may both no longer suffer from the haunting images of his experiences in the war (or at least have to deal with these flashbacks much less frequently), and he may begin to do better in his social and work life. But on other hand, the psychological

consequences of his lived experience of the war, if untreated,[16] would lead to an act of ethical agency—i.e. the writing of the exposé/memoir as an ethical gesture of atonement. It seems to me that in most, if not all cases, the soldier would likely be given whatever sort of treatment is available to improve his quality of life and social functioning; and that this would be assumed to be an ethical way of helping to treat an individual who is struggling with the reality of his lived experience. The problem remains, however, that this sort of narrow approach to what it means to reflect on things ethically entirely misses the point about the ethical subjectivity of the soldier himself. If such treatment dulls the soldier to his memories and lived experience in such a way that it restricts the scope of his ethically responding to demands that he would otherwise answer, then it does him a disservice and impacts his ethical subjectivity in a way that is harmful as well.

I don't have a clear answer as to what ought to be done in such cases—i.e. whether we ought to value the soldier's peace of mind and social integration above his neurochemically unaltered ethical subjectivity—but what I am arguing is that alterations to the scope of his ethical subjectivity deserves far greater consideration than it appears to typically receive in neuroethical theorizing.[17] One of the reasons that considerations about the ethical subjectivity of a patient or research subject might not be as prevalent in the literature may have to do with, as suggested earlier, its partially falling in between the two standard research categories identified by Roskies. Indeed, while 'the ethics of neuroscience' might provide us with guidance when it comes to how to avoid the obviously socially harmful, legally objectionable, or other reductions to the quality of life of a given patient, it appears to overlook questions about the ethical subjectivity of a patient or research participant because the focus tends to be more squarely set upon the discipline of neuroscience as an ethically accountable practice or metaphorical ethical agent in its own right. And to the extent that 'the neuroscience of ethics' aims to ultimately reduce ethical notions to more basic neural processes, it fails to acknowledge that subjects respond to ethical demands first and foremost *as* conscious subjects. So it seems clear that an existentialist understanding of ethical subjectivity amounts to, if not

16. We will presume for the sake of argument that it will only be in the case of not receiving treatment that the soldier is motivated by his PTSD symptoms to write the exposé/memoir.

17. So far we have only been considering neuroscientific modifications to brain function that are presumed to limit or reduce the scope of one's ethical subjectivity but we might also argue about whether or not modifications that enlarge the scope of one's ethical subjectivity (by making one more sensitive to ethical demands that one might normally fail to notice) ought to be pursued. However, I will save my thoughts on arguments about the prospects for an enlarged scope of ethical subjectivity for a future paper.

an alternative to standard approaches to neuroethics, then at least a corrective to an over-simple view of what ethics might entail.

4. Existentialist neuroethics and neuroessentialism

As mentioned previously, one of the two main branches of neuroethics—the one that Roskies calls 'the neuroscience of ethics'—is often characterized by a commitment to neuroessentialism, or the view that it is the functioning of the brain that entirely determines the types of people that we are, as well as the sorts of ethical behaviours which we will perform in various circumstances. In direct contrast to this strongly neuro-deterministic view lies an existentialist understanding of ethical subjectivity that takes radical freedom to decide and personal subjectivity as the starting point of any realistic account of ethical agency. Clearly, these two positions appear to be at odds with one another. And there appears to be a problem with attempting to maintain that these views are in any way compatible. The point has been made by Žižek (2010/2011) that transhumanists often fail to see this sort of issue even as it stares them in the face:

> …when they describe the possibility of intervening in our biogenetic base and changing our very "nature," they somehow presuppose that the autonomous subject freely deciding on his or her acts will still be present, deciding on how to change its "nature."…on the one hand, as the object of my interventions, I am a biological mechanism whose properties, including mental ones, can be manipulated; on the other hand, I (act as if) I am somehow exempt from this manipulation, an autonomous individual who, acting at a distance, can make the right choices. But what…[if]…the autonomous individual is no longer there? (347)

In other words, the contrast in views appears to be insurmountable. Either we accept the neuro-essentialist assumption that we are thoroughly determined by our brains, or we assume that we are radically free in a way that neuroscience could never alter nor impair because it deals only with neurons and not subjects of experience. The astute reader will have noticed that this tension between the strong determinism of neuroessentialism and the radical freedom of existentialist subjectivity has been in the background of this paper for almost the entire time—but I have not made the mistake with which Žižek charges the transhumanists since my argument is that the subject in fact is altered by neuroscientific modifications *to his or her being*. However, I don't think that this means that neuroessentialism therefore comes out on top, and I don't think that things are

quite as black and white as the above quote frames them. Indeed, I think we can find a middle way between these two apparently opposing views if we simply soften the edges of each—and insofar as we are aiming at an inclusive and comprehensive approach to neuroethics, doing just so looks to be a worthwhile objective.[18]

In order to avoid the apparent tension between the two identified approaches we need only understand the way in which they might work together in a sort of hybrid form. To accomplish this we might acknowledge the *influence* of neuro-modification upon the scope of the ethical agent's subjectivity by affecting her moods, affect, attention, attitudes, *et cetera*, while maintaining that such an influence does not utterly determine—in other words, only partially constrains—the final choices of the ethical subject, since such choice is only sensible to the ethical subject *qua* self-conscious subject. That is to say, while the subject's choice can remain ultimately free, the range of things over which she may be consciously aware can be restricted or impacted by neuroscientific interventions just as they can by other physical interventions. Additionally, we will need to soften the notion of radical freedom that is at play in the existentialist view as well in order to make room for the fact that subjective choice can be impaired by limiting the scope of things to which an agent remains receptive or cognizant. Yes, there may be a sense in which one's subjectivity and choice remain ultimately free, but if one is kept from developing an awareness of certain things due to neuroscientific interventions, then the scope of one's freedom is impaired just as much as one's movement is compromised by being stuck on an island and not knowing how to swim.

Ethics arises in a context of constraint; in a context of a demand that is experienced by the ethical subject—any neural modification that diminishes the ethical subject's sensitivity to the natural ethical demands of the world harms both the ethical subject or agent as well as those sources of ethical demands whose call for concern goes unanswered. And any overzealous attempt to completely reduce ethical agency (or the ethical enterprise itself) to neuronal happenings fails to understand the finer points of ethical reflection and action as well as drastically over-estimates the kinds of things that neuroscience can tell us. But there is reason to be hopeful that we can avoid these types of errors in the future once they are more widely recognized and acknowledged. As Parens & Johnston (2007), suggest:

18. This more modest 'middle way' that I am suggesting here is largely consistent with what Racine (2010, 65) calls a 'moderate pragmatic naturalism.'

> It might indeed be possible for neuroethicists to work closely with neuroscientists without succumbing to the hyperbole that genethicists once succumbed to at the elbows of geneticists. As we work to resist that temptation, we need to be vigilant about using the complexity-reducing shorthand that scientists, journalists, bioethicists and others often use. When we hear anyone talk of 'the part of the brain for' complex behaviour X, we should remember that, once upon a time, geneticists spoke of 'the genes for' complex behaviour X. (S62-S63)

So rather than falling prey to the inadequacies and exaggerated promises of a neuroessentialist perspective, let us neuroethicists increase the scope of our ethical reflections to include consideration of the ethical subject and how neuroscientific interventions might impact the very subjectivity of ethical agents by impeding their freedom to respond to the sorts of ethical demands that everyday life presents to them.

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