The Existential Passage Hypothesis

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BOOK REVIEW: Metaphysics by Default, by Wayne Stewart, 1999, http://mbdefault.org/.

This online philosophical monograph is divided into 20 chapters, 8 appendices and a list of Works Cited. For an abstract of the entire work, see Wayne Stewart. Metaphysics by Default: Naturalism and Metaphysics Reconciled. *Metaphysics by Default*. http://mbdefault.org/lectures/abstract2.asp.

This review will focus on **Chapters 9 and 11** (accessed July 6, 2018). The review is divided into four sections: (1) summary of the Chapters' conclusions, (2) assessment of the Chapters' arguments, (3) further comments on the Chapters, including suggestions for future research, and (4) concluding remarks.

1. Summary of the conclusions

In Chapter 9, Stewart defends the thesis that if non-reductive physicalism is true,[2] then, contrary to a widespread belief, death does *not* bring about eternal oblivion, a permanent cessation of the stream of consciousness at the moment of death. Stewart argues that the stream of consciousness continues after death—devoid of the body's former memories and personality traits—and it does so as the stream of consciousness of new, freshly conscious bodies (other humans, animals, etc., that are conceived and develop consciousness). And so, any permanent cessation of the stream of consciousness at the moment of death is impossible as long as new, freshly conscious bodies come to exist. *Consciousness* is defined here as awareness, and is not limited to self-awareness (i.e., the recognition of one's awareness). This general thesis does not specify *when* in the future those *new, freshly conscious bodies* must have come into being. This thesis has also been independently defended by the philosopher Thomas W. Clark.[3]

In Chapter 9, Stewart argues *more specifically* for what he calls the ***existential passage hypothesis***, expressing the concept in several ways, e.g.:

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[1] Email: jeandavidrobert@hotmail.com; website: https://jeandavidrobert.blog/

[2] Stewart, Wayne. Lectures. *Metaphysics by Default*. http://mbdefault.org/lectures/transcript.asp (Accessed July 6, 2018). See also Sturm, Thomas. 2012. Consciousness regained? Philosophical arguments for and against reductive physicalism. *Dialogues in Clinical Neuroscience*. 14(1): 55–63. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3341650/.

[3] Clark, Thomas W. November 1994. Death, Nothingness, and Subjectivity. *The Humanist* 54(6): 15–21. http://www.naturalism.org/philosophy/death/death-nothingness-and-subjectivity (Accessed July 6, 2018); Clark, Thomas W. A Notable Theoretical Convergence. *Naturalism.Org*. http://www.naturalism.org/philosophy/death/a-notable-theoretical-convergence (Accessed July 6, 2018).

> "Where nature assembles necessary and sufficient conditions for a phenomenon, we trust nature to deliver the phenomenon. That trust applies to essay conditions, as everywhere."[4] [pers. comm.] "It applies for example to William James' unfelt time-gap; delivering the unfelt time-gap wherever nature assembles conditions for it, even if conditions are assembled across separate persons."[5]

The following is my own restatement of that hypothesis:

> For any conscious body, *x*, *x*'s stream of consciousness *continues*, following *x*'s permanent cessation of consciousness (or *death*), as the stream of consciousness of some other body (or *passage recipient*), *y*, namely the *first body* to have *gained* (or first experienced) consciousness following *x*'s death.[6]

Importantly, by "*x*'s stream of consciousness *continues*…," what I mean (from this point onward) is that *x*'s stream of consciousness continues *un*imbued with *x*'s former memories and personality traits.

Given my restatement of the existential passage hypothesis, the notion of ***existential passage*** (as used by Stewart) can be stated as follows:

> For any conscious body, *x*, the passage that occurs when *x*'s stream of consciousness *continues*, following *x*'s death, as the stream of consciousness of some other body (or *passage recipient*), *y*, namely the *first body* to have gained consciousness following *x*'s death.

In an appended chapter, Stewart argues that existential passage is unaffected by spatial distances and differences in central nervous systems (CNSs) and that this passage can thus theoretically occur between vastly distant worlds harboring living organisms with vastly different CNSs.[7]

In Chapter 11, Stewart explains and illustrates how four ***types of existential passage*** logically follow from the existential passage hypothesis. These four types are restated as follows:[8]

- A *unitary passage*: For a given conscious body, x_1, x_1's stream of consciousness *continues*, following x_1's death, as the stream of consciousness of some other body, *y*, namely the first body to have gained consciousness following x_1's death; and neither a *merged* passage nor a *split* passage has occurred.
- A *merged passage*: For at least two conscious bodies, $<x_1 \dots x_n>$, $<x_1 \dots x_n>$'s streams of consciousness *continue*, following $<x_1 \dots x_n>$'s deaths, as the stream of consciousness of some other body, *y*, namely the first body to have gained consciousness following $<x_1 \dots x_n>$'s deaths.
- A *split passage*: For a given conscious body, x_1, x_1's stream of consciousness *continues*, following x_1's death, as the streams of consciousness of at least two other bodies, $<y_1 \dots y_n>$, namely the first bodies to have gained consciousness following

[4] http://mbdefault.org/9_passage/3.asp (Accessed July 6, 2018).
[5] Personal communication, July 15, 2018.
[6] http://mbdefault.org/9_passage/2.asp (Accessed July 6, 2018).
[7] http://mbdefault.org/20_proof/default.asp (Accessed July 6, 2018).
[8] http://mbdefault.org/11_types/default.asp; http://mbdefault.org/12_grammar/default.asp (Accessed July 6, 2018).

x_1's death, where those bodies have gained consciousness at the exact same moment in time. Stewart believes that split passages are probably unlikely since "developmental timings cannot approach the perfect synchronization posited in the split passage."[9]

- An *ex nihilo passage*: *y*'s stream of consciousness is not the continuation of any antecedent stream of consciousness. An *ex nihilo* passage occurs *if and only if y* achieves consciousness, but neither a unitary passage, nor a merged passage nor a split passage has occurred.[10]

In Chapter 11, Stewart also discusses alternatives to his existential passage hypothesis. He calls these alternatives the ***permeable identity hypotheses***.[11] He argues that they are conceivable, though unlikely to be true. Stewart identifies two: (I have restated these hypotheses and given them unique names.)

- The *strongly permeable identity hypothesis*: For any conscious body, *x*, *x*'s stream of consciousness *continues*, following *x*'s death, as the stream of consciousness of at least one other body, *y*, namely any body that is conscious following *x*'s death.
- The *weakly permeable identity hypothesis*: For any conscious body, *x*, *x*'s stream of consciousness *continues*, following *x*'s death, as the stream of consciousness of some other body, *y*, namely the first body to have gained or *re*gained consciousness following *x*'s death.

Importantly, by *regained consciousness*, what I mean (from this point onward) is that *y* (the *body*) was previously conscious, then *y* lost consciousness and, after an unspecified amount of time, *y* returned to consciousness. According to *MedlinePlus*,

> "Unconsciousness is when a person is unable to respond to people and activities. Doctors often call this a coma or being in a comatose state. […] Being asleep is not the same as being unconscious. A sleeping person will respond to loud noises or gentle shaking. An unconscious person will not."[12]

2. Assessment of the arguments

In Chapter 9, Stewart argues I think successfully for the core intuition of his existential passage hypothesis, i.e., the intuition that the passage between *x*'s death and *y*'s birth is "understood as unfelt time-gap, with nothing superadded—rather, and critically, with individuation *subtracted*. All that has 'passed' is a shift of perceived existential 'moment'—a natural relocation of the

[9] http://mbdefault.org/11_types/default.asp (Accessed July 6, 2018).
[10] http://mbdefault.org/11_types/11_6.htm (Accessed July 6, 2018).
[11] http://mbdefault.org/11_types/default.asp#fn7 (Accessed July 6, 2018).
[12] Unconsciousness – first aid. *MedlinePlus*. U.S. National Library of Medicine (NLM). https://medlineplus.gov/ency/article/000022.htm (Accessed July 6, 2018).

awareness of existence."[13] Thomas Clark calls this ***generic subjective continuity***.[14] In arguing for this core intuition, Stewart refers to two plausible, central concepts: *time-gaps* and the *stream of thought*. (I refer to the latter concept as the *stream of consciousness*.) Both concepts are credited to William James.[15] Stewart's achievement is especially remarkable on account of how revolutionary the core intuition is.

In Chapter 11, Stewart does a really great job of explaining and illustrating the various types of existential passage and showing how they jointly exhaust the possibilities. This is crucial work for the development of a complete theory of generic subjective continuity.

In a lengthy footnote (that would have merited discussion in a separate section), Stewart objects to both permeable identity hypotheses on the grounds that "the stream of thought persists unbroken throughout life" and that "we ourselves perceive subjective experience as a deeply unified whole".[16] But these arguments are undercut by Stewart's later acknowledgment that "the passage recipient would be ignorant of any such [passage] events, just as he or she would have been ignorant of the existential passage which transpired at conscious birth."[17]

In the same footnote, Stewart also objects to both permeable identity hypotheses on the grounds that they are not supported by any strong arguments or intuitions, and because "subjectivity is conserved in the thalamocortical system, even during sleep," whereby that system sets a "baseline integrity of subjective experience." The latter objection is addressed below in my counterargument to objection "(2) Potentiality".

With regard to the former objection, let us assume for the sake of argument that Stewart is correct in claiming that no supporting arguments or intuitions are forthcoming. And let us define *permeable identities* as identities (or bodies) that are capable of *receiving* existential passages during the course of their lives, even after having initially achieved consciousness. Whether permeable identities *do* or *do not exist* we should *not* expect to have strong *supporting* arguments or intuitions about whether they exist, *either way*. Again, I need only point to Stewart's own acknowledgement that if permeable identities *did* exist, then these identities would be completely oblivious to any passage events. Therefore, a lack of strong *supporting* arguments or intuitions about permeable identities cannot be counterevidence of permeable identities.

Actually, though, I believe that we *do* have strong supporting arguments and intuitions about permeable identities, more specifically, ***weakly permeable identities***—i.e., permeable identities that are capable of *receiving* existential passages only when they gain or *re*gain consciousness. We can begin by noting that, all else being equal, hypotheses that posit weakly permeable identities

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[13] http://mbdefault.org/9_passage/2.asp (Accessed July 6, 2018).

[14] Clark, Thomas W. November 1994. Death, Nothingness, and Subjectivity. *The Humanist* 54(6): 15–21. http://www.naturalism.org/philosophy/death/death-nothingness-and-subjectivity (Accessed July 6, 2018); Clark, Thomas W. A Notable Theoretical Convergence. *Naturalism.Org*. http://www.naturalism.org/philosophy/death/a-notable-theoretical-convergence (Accessed July 6, 2018).

[15] James, William. 1890. *The Principles of Psychology*. Volume 1. New York: Holt. https://archive.org/details/theprinciplesofp01jameuoft.

[16] http://mbdefault.org/11_types/default.asp#fn7 (Accessed July 6, 2018).

[17] http://mbdefault.org/11_types/default.asp#fn7 (Accessed July 6, 2018).

are more parsimonious, and as such, more plausible than hypotheses that posit *strongly permeable identities*—i.e., permeable identities that are capable of *receiving* existential passages at *any and every* moment.[18] This is because hypotheses that postulate weakly permeable identities require simpler metaphysical entities—more specifically, less complex identities.

On this basis, strong arguments (or counterarguments) will be made (in what follows) in support of an *extended* hypothesis that posits *weakly permeable identities*. From now onward, I will refer to this hypothesis simply as the ***extended existential passage hypothesis***. I define it as follows:

> For any conscious body, *x*, *x*'s stream of consciousness *continues*, *following any (permanent or temporary) loss of consciousness by x*, as the stream of consciousness of at least one body (or *passage recipient*), *y*, namely the first body to have gained or *re*gained consciousness following *x*'s *loss of consciousness*, where instances of *x* can be instances of *y* (i.e., the passage recipient can be *x* itself).

The notion of ***extended existential passage*** is defined as follows:

> For any conscious body, *x*, the passage that occurs when *x*'s stream of consciousness *continues*, *following any (permanent or temporary) loss of consciousness by x*, as the stream of consciousness of at least one body (or *passage recipient*), *y*, namely the first body to have gained or *re*gained consciousness following *x*'s *loss of consciousness*, where instances of *x* can be instances of *y* (i.e., the passage recipient can be *x* itself).[19]

Using Chapter 11's four passage types as a template, we can identify four ***types of extended existential passage***:

- A *unitary passage*: For a given conscious body, x_1, x_1's stream of consciousness *continues*, following any loss of consciousness by x_1, as the stream of consciousness of some body, *y*, namely the first body to have gained or *re*gained consciousness following x_1's loss of consciousness (where x_1 can be *y*); and neither a *merged* passage nor a *split* passage has occurred.
- A *merged passage*: For at least two conscious bodies, $<x_1 \dots x_n>$, $<x_1 \dots x_n>$'s streams of consciousness *continue*, following any losses of consciousness by $<x_1 \dots x_n>$, as the stream of consciousness of some body, *y*, namely the first body to have gained or *re*gained consciousness following $<x_1 \dots x_n>$'s losses of consciousness (where $<x_1$ or $\dots x_n>$ can be *y*).
- A *split passage*: For a given conscious body, x_1, x_1's stream of consciousness *continues*, following any loss of consciousness by x_1, as the streams of consciousness of at least two bodies, $<y_1 \dots y_n>$, namely the first bodies to have gained or *re*gained consciousness following x_1's loss of consciousness, where those bodies have

[18] Baker, Alan. Simplicity. *The Stanford Encyclopedia of Philosophy* (Winter 2016 Edition), Edward N. Zalta (ed.). https://plato.stanford.edu/archives/win2016/entries/simplicity/.

[19] Contrary to existential passage, *extended existential passage* can thus occur between living bodies.

(respectively) gained and *re*gained consciousness at the exact same moment in time (where x_1 can be $<y_1$ or … $y_n>$).

- An *ex nihilo passage*: *y*'s stream of consciousness is not the continuation of any antecedent stream of consciousness. An *ex nihilo* passage occurs *if and only if y* gains or *re*gains consciousness, but neither a unitary passage, nor a merged passage nor a split passage has occurred.

Stewart does not *explicitly* acknowledge this *extended* existential passage hypothesis. Other than his arguments against strongly permeable identities and weakly permeable identities (which I have address above), Stewart's *implicit* rejection of this *extended* existential passage hypothesis in favor of his more *restricted* existential passage hypothesis appears to be based on Arguments (1) and (2) as they are restated below. Here is a telling passage from Chapter 9:

> "*Subjectively*, Nicos' unfelt time-gap *continues*, indefinitely. […]
>
> This particular time-gap is unusual in that it is open-ended. Nicos' inanimate body cannot restore subjectivity to Nicos in future; as a result, it cannot end the time-gap which Nicos' death has initiated.
>
> Hereafter I will refer to this special type of unfelt time-gap as a 'mortal amnesia': it is the forgetfulness of existence we can associate with failure of the criteria of personal identity. By prior reasoning this amnesia is irreversible. Having encountered mortal amnesia, Nicos afterwards lacks the means of perceiving any aspect of his condition, or of recovering in future any of the memories which death has destroyed."[20]

Arguments (1) and (2) and my counterarguments to each are as follows:

(1) *Backward causation*: The *future* restoration of *x*'s personal identity (or alternatively, the *future* restoration of key attributes guarantying the continuity of *x*'s personal identity), upon or after *x*'s return to consciousness, prevents *x*'s extended existential passage (to another passage recipient) from occurring in the present.

Note: In Chapter 8, Stewart argues at length that *x*'s personal identity is best understood as a combination of three key attributes: physical continuity, episodic memory and subjectivity.[21]

My reply to (1): Backward causation is only possible if we accept a *tenseless theory of time* (or *B-theory of time*)—where the past, present and future are equally real. But the notion of a *stream of consciousness* (as it is used in Chapters 9 and 11) seems to necessitate a *tensed theory of time* (or *A-theory of time*)—where the present is real, but *not* the future. This is because the tensed (or A-) theory of time is seemingly the only theory of time that allows for the *objective passage of time* (or objective becoming) that is needed to make sense of the notion of a *stream of consciousness*. Without objective temporal passage (or objective passage of time), conscious experience is nothing more than a set of counterfactually-related conscious experiences superimposed on a set of time coordinates. Consequently, without objective temporal passage, there can be no stream of consciousness and so, no generic subjective continuity—i.e., no existential passage and no *extended* existential passage. According to *The Stanford Encyclopedia of Philosophy*,

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[20] http://mbdefault.org/9_passage/default.asp (Accessed July 6, 2018).

[21] http://mbdefault.org/8_identity/default.asp (Accessed July 6, 2018).

> "A proper notion of backward causation requires a static account of time in the sense that there is no objective becoming, no coming into being such that future events exist on the par with present and past events. It means that the future is real, the future does not merely consist of unrealised possibilities or even nothing at all. […] If backward causation is to be conceptually possible it forces us to be realists with respect to the future. The future must contain facts, events with certain properties, and these facts can make sentences about the future true or false. Such a realist account is provided by static and tenseless theories of time."[22]

Some recent metaphysical work has however challenged the widely accepted view that, under a tenseless (or B-) theory of time, time does not objectively pass:

> "Most B-theorists defend the reality of both time and change. Overwhelmingly, however, they deny that time genuinely passes, insisting that the passage of time is some kind of cognitive illusion. In this chapter it is argued that, while A-theoretic accounts of the passage of time are indeed mistaken, there is no reason for the B-theorist to resist the idea of mind-independent temporal passage. This mistake stems from two sources: first, the implicit acceptance of the A-theory's understanding of passage; secondly, from the unnecessary assumption that temporal passage is best understood as some kind of motion. A tenseless, relational account of passage that is based on tenseless, temporal relations is presented and defended. It is further argued that the B-theory is compatible with an objective direction of time. This chapter concludes with some reflections on the arguments presented in the book as a whole."[23]

If this new perspective is correct, then the idea of a *stream of consciousness* appears to be fully consistent with a tenseless (or B-) theory of time. So, let us suppose for the sake of argument that the idea of a *stream of consciousness* is entirely consistent with a tenseless (or B-) theory of time. Is (1) then salvageable?

I do not believe so. The reason I say this is that Argument (1) presupposes Argument (2) (see below), and Argument (2) is unsustainable. Let me explain: (1) states that personal identity or key attributes thereof have the power to retro-cause *x*'s prior stream of consciousness to continue in *x*. But as I will explain in my reply to (2), we have no reason to think that personal identity or key attributes thereof have any such potentiality—i.e., whether we take the cause to precede its effect (forward causality) or the effect to precede its cause (backward causality).

(2) *Potentiality*: When *x* has all the markers of temporary unconsciousness, *x* has the potential to *receive* *x*'s continued stream of consciousness, and so, upon *x*'s return to consciousness, *x*'s prior stream of consciousness seamlessly continues as *x*'s renewed stream of consciousness.

My reply to (2): As long as *x*'s neural and cognitive machinery remains intact, *x* has the potential to experience a stream of consciousness imbued with *x*'s memories and personality traits. *That*, we

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[22] Faye, Jan. Backward Causation. *The Stanford Encyclopedia of Philosophy* (Summer 2018 Edition). Edward N. Zalta (ed.). https://plato.stanford.edu/archives/sum2018/entries/causation-backwards/. See also Markosian, Ned. Time. *The Stanford Encyclopedia of Philosophy* (Fall 2016 Edition). Edward N. Zalta (ed.). https://plato.stanford.edu/archives/fall2016/entries/time/.

[23] Mozersky, Joshua. 2015. The B-theory and the passage of time. *Time, Language, and Ontology: The World from the B-Theoretic Perspective*. Oxford University Press. http://dx.doi.org/10.1093/acprof:oso/9780198718161.003.0008.

can all agree on. However, we have no justifiable reason for claiming that upon *x*'s return to consciousness, *x*'s stream of consciousness must have *this or that* origination *on the basis of x*'s neural and cognitive machinery.

Since streams of consciousness *un*imbued with the bodies' memories and personality traits differ only in their originations and since *x*'s neural and cognitive machinery cannot discriminate among originations, unimbued streams of consciousness are indistinguishable to *x*'s neural and cognitive machinery. Therefore, as long as *x*'s neural and cognitive machinery remains intact, then upon *x*'s return to consciousness, *x* has the potential to *receive* any *unimbued* stream of consciousness—i.e., either *ex nihilo* or from any conscious body—*within* the passage rules entailed by generic subjective continuity.

It is also worth noting that personal identity abstracted from *x*'s neural and cognitive machinery has no potentiality as it is *abstracta*—abstract objects (e.g. numbers, sets, propositions, etc.) are considered causally inert.[24]

For all these reasons, I believe that (2) is unsustainable. And if we apply the same line of reasoning to *y*, then we also have strong reasons for positing a *weakly permeable identity*—i.e., where *y* is the first body to have gained *or regained* consciousness following *x*'s loss of consciousness.

To sum up, I have argued that as long as generic subjective continuity is *itself* plausible, then among the various *alternative hypotheses* that posit generic subjective continuity (e.g. the weakly permeable identity hypothesis, the strongly permeable identity hypothesis, the (restricted) existential passage hypothesis, etc.), the *extended* existential passage hypothesis is the only one of those hypotheses that can be considered plausible. As such, since Stewart argues successfully for generic subjective continuity, we have every reason to give credence *not* to the *restricted* existential passage hypothesis but rather to the *extended* existential passage hypothesis (as defined and explicated above).

3. Further comments and suggestions

Modal realism is the metaphysical theory that every possible world (including the actual world, or the one in which *we* reside) is as spatiotemporally real as any other. As long as extended existential passage does not require metaphysical *causal* relations between bodies in different spaciotemporal, possible worlds, extended existential passage between different spaciotemporal, possible worlds is not forbidden by modal realism.[25] Furthermore, in some *multiverse theories* (i.e., physical theories positing multiple universes), such as the many-worlds interpretation of quantum

[24] Rosen, Gideon. Abstract Objects. *The Stanford Encyclopedia of Philosophy* (Winter 2017 Edition). Edward N. Zalta (ed.). https://plato.stanford.edu/archives/win2017/entries/abstract-objects/#CausInefCrit.

[25] Parent, Ted. Modal Metaphysics. *The Internet Encyclopedia of Philosophy*. http://www.iep.utm.edu/mod-meta/ (Accessed July 6, 2018).

mechanics, causal interactions between different universes are a theoretical possibility.[26] Such multiverse theories thus certainly do not rule out extended existential passage between different universes. Therefore, if any such multiverse theory is correct or if modal realism is true and extended existential passage is acausal, then any permanent cessation of the stream of consciousness following any (permanent or temporary) loss of consciousness (e.g., death) is impossible *tout court*. An interesting parallel is the *quantum suicide experiment*.[27]

The tenseless theory of time, like the tensed theory of time, is hotly debated in philosophy. The tenseless theory of time states that all moments in time are equally real; none are objectively privileged. Therefore, if a tenseless theory of time (i) is correct and (ii) allows for objective temporal passage, then *x*'s unimbued stream of consciousness could theoretically pass—via extended existential passage—to any moment, or any moments, in the actual timeline, whether past, present or future. And so, if a tenseless theory of time is correct and allows for objective temporal passage, then, once again, any permanent cessation of the stream of consciousness following any (permanent or temporary) loss of consciousness (e.g., death) is impossible *tout court*.[28]

In Chapter 18, Stewart explains in what ways his passage hypothesis could profitably inform environmental decision theory and ethics. To give one example, Stewart points out that if we accept his passage hypothesis, then we are *pragmatically* required to do what we can for *posterity*—i.e., future generations of conscious creatures—because we ourselves will join posterity via existential passage.[29] I would go even further. The tenseless theory of time may very well be true and may very well allow for objective temporal passage. As such, there is a very real possibility that our unimbued streams of consciousness might pass—via extended existential passage—from some future moment in time to our present moment in time. Thus, we also have an additional pragmatic reason to do what we can for ourselves and for *current* generations of our fellow conscious creatures.

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[26] Plaga, Rainer. 1997. On a possibility to find experimental evidence for the many-worlds interpretation of quantum mechanics. *Foundations of Physics*. 27(4): 559–577. https://doi.org/10.1007/bf02550677 (https://arxiv.org/pdf/quant-ph/9510007.pdf).

[27] Tegmark, Max. December 20/27, 1997. Dying to Know. *New Scientist*. http://space.mit.edu/home/tegmark/main_crazy.html#newsci (Accessed July 6, 2018).

[28] For a similar view, see Shleyfer, Michael. 2004. Comment from Michael Shleyfer. *Naturalism.Org*. http://www.naturalism.org/philosophy/death/commentary-on-death-nothingness-and-subjectivity#toc-comment-from-michael-shleyfer-LcV2O2Oi (Accessed July 6, 2018).

[29] "For [Peter] Singer, the critical anatomic structure is just the central nervous system (CNS) itself. The CNS makes possible the sensation of pleasure and pain. Consequently the CNS makes a creature deserving of natural rights and ethical treatment.

Singer's ethical conclusion dovetails with the metaphysical conclusion of Chapter 17. In that chapter we found that Metaphysics by Default would seem to apply not to *Homo sapiens* alone, but to CNS species generally. CNS species have been shown to meet the criteria of personal identity: it follows that creatures of all CNS species may be thought to participate in the web of existential passages described by Metaphysics by Default." (http://mbdefault.org/18_benefits/default.asp. Accessed July 6, 2018.)

Building on Chapters 9 and 11, one worthwhile project would be to research how likely it is for someone's unimbued stream of consciousness to pass—via extended existential passage—to a comparatively *worse* stream of consciousness. One would need to calculate the odds of various experiential outcomes of extended existential passage—e.g. the passage recipient lives a pleasant life, the passage recipient is plunged into misery, etc.—under various assumptions—i.e., a tensed theory of time and a tenseless theory of time (allowing for objective temporal passage); one or multiple spaciotemporal universe(s) (multiverse theory) and one or multiple spaciotemporal, possible world(s) (modal realism).

With this knowledge, every person would be able to determine, in light of their individual circumstances and on the basis of rational choice theory,[30] whether it would be rational for them to endeavor to prolong their conscious life *indefinitely* in order to avoid risky extended existential passages. For example, this research could count as a pragmatic reason to invest in healthy life extension research.

> "Recent biotechnological progress indicates that many aspects of aging may indeed be effectively treatable by regenerative medicine in the foreseeable future. We cannot yet know whether all aspects will be, but extensive scrutiny has failed to identify any definite exceptions. Therefore, at this point there is a significant chance that such therapies would postpone age-related decline by several years, if not more, which constitutes a clear case for allocating significant resources to the attempt to develop those therapies."[31]

4. Concluding remarks

On the basis of my review of Chapters 9 and 11, I can confidently say that these chapters are a must-read for any person interested in their own existential fate and in that of human-kind and conscious-kind more generally. These chapters deserve to be widely cited in the philosophical literature, especially in metaphysics, ethics and decision theory, where Stewart's existential passage hypothesis and extensions thereof have significant implications.[32]

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[30] Briggs, R. A. Normative Theories of Rational Choice: Expected Utility. *The Stanford Encyclopedia of Philosophy* (Spring 2017 Edition). Edward N. Zalta (ed.). https://plato.stanford.edu/archives/spr2017/entries/rationality-normative-utility/.

[31] Research Advisory Board. *SENS Research Foundation*. http://www.sens.org/about/leadership/research-advisory-board (Accessed July 6, 2018).

[32] http://mbdefault.org/18_benefits/default.asp (Accessed July 6, 2018).

[33] Robert, David. May 14, 2018. Is death eternal oblivion? *David Robert's Philosophy Blog*. https://web.archive.org/web/20180708000431/https://jeandavidrobert.blog/2018/05/14/is-death-eternal-oblivion/.

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