

What Matters in Survival: The Fission Problem, Life Trajectories, and the Possibility of Virtual Immersion

Abstract: This paper has two goals. The first is to motivate and illustrate the possibility that we can accept Parfitian arguments about the importance of personal identity, while rejecting fission as an instance of preserving what matters in survival. The second goal is to develop a particular externalist view of what matters in survival that can accommodate and explain this possibility. The motivation for this conception of what matters comes from considering certain cases of virtual immersion – the immersion of a psychological subject in a virtual world. Replacing the standard psychological continuity theory of what matters with the “life trajectory” theory, developed here, not only rules out fission cases as those in which we have what matters, but also explains different reactions we might have to different virtual immersion scenarios.

1. Introduction¹

The traditional puzzle of what makes a person one and the same over time has been superseded, in many circles, by the question of what matters in the survival of a person over time – those facts required to hold for an earlier person A to identify with future person B in the same way they would have had they maintained their identity, and that allow a future being B to identify with that past person A in the same way they would have had they been that person in the past.² A current person A identifies with a past or present person B when person A takes her current existence as fundamentally explained by, or as explaining, the existence of person B in the past or future – when the reason for A’s existence is B’s

¹ For the sake of neutrality, the singular pronoun ‘they’ and its variants will be used throughout.

² For arguments that there are both forward and backward looking requirements in order to have what matters in survival see Schetchman (2001). For other definitions of what matters, see Martin (1995), Parfit (1971, 1984), Perry (1976), and Unger (2003). It should be noted that Parfit is not consistent in his use of the term ‘survival’. Sometimes he uses ‘survival’ as a stand in expression for ‘persistence’ (1984), but at other times (1971), he drives a wedge between the two concepts. I will follow the more natural (1984) use in which ‘survival’ has the same meaning as ‘persistence’, and instead use Parfit’s term ‘what matters in survival’ to indicate the concept that maintains what matters, but fails to maintain identity.

previous existence, or the reason for B's future existence is A's current existence. This shift in focus is largely the result of two developments in the discourse on the nature of personal identity: first, the discovery, and wide acceptance, of the idea that psychological continuity is the main factor that allows for such identification; and second, the recognition that the presence of psychological continuity is not sufficient to maintain a person's identity over time. This is true for at least two reasons: psychological continuity is duplicable, and it comes in degrees. The first development has a long history, going back at least to Locke (1694). The second development, however, did not come into play until the 1970's, popularized by Parfit's work (1971, 1984, 1995, 1999, 2012).

By far, the most controversial idea for thinking that psychological continuity cannot guarantee identity is the idea that psychological continuity is duplicable. This argument rests on considering fission cases – in which a single person undergoes some process whose end result is the creation of two distinct persons, each of them psychologically connected to the original, but not with one another. Some psychological continuity theorists embraced the idea. One example is Lewis (1983). While Lewis rejects the idea that fission does not preserve identity, he accepts the idea that we have what matters in fission cases.³ However, there are many contemporary theorists, both identity and non-identity theorists alike, who still find it counterintuitive. Sosa (1990), for instance so finds it, as does Unger (1997), and many others, including Korsgaard (1989), Whiting (2002), Rovane (1998), and at least for cases of symmetrical fission – cases in which both fission products are equally independent autonomous agents simultaneously – so too does Martin (1998). Call anyone sympathetic to psychological continuity theory, to its consequence that identity is not what

³ Because I am not here adjudicating between identity theorists and Parfitians I will not be explicating the specifics of Lewis's account of identity over time.

matters, but who also wish to maintain that only one-to-one correspondence over time can maintain what matters a “Parfitian singularist.” Because these theorists accept that identity is not what matters, but that duplicating psychologies also cannot preserve what matters, their only recourse is to explore whether something might be missing from psychological continuity theory that could allow for a distinction between duplication cases and ordinary singular cases.

I will argue that cases of virtual immersion in which a psychological subject is immersed in an entire illusory environment show that being connected to, and being able to participate in, the external environment is important for survival. I subsequently suggest an explanation for this: to survive, a subject must be able continue to live their lives as they were formed in their external environments. That is, what I will be calling a subject’s “life trajectory” must continue for that subject to have what matters in survival. I will explain the life trajectory theory and that it can accommodate Parfitian singularism. In addition, I argue that the view is superior to standard psychological continuity theory, because it can explain our reactions to certain cases of virtual immersion much better than psychological continuity theory can.

The paper is organized as follows: in the following section, the motivation for Parfitian singularism – for accepting that identity does not matter in survival – is explored. In Section 3, we will see what is wrong with standard psychological continuity theory, and I will offer and develop a theory that avoids the problems with that view – the life trajectory theory. In Section 4, this theory is applied to fission and virtual immersion scenarios. Finally, I consider two objections in Section 5.

2. Parfitian Singularism: Motivation

Parfitian singularism consists of two separate components. The first is the Parfitian claim that if psychological continuity is what matters in survival, identity is not what matter. The second is the idea that, even if identity is not what matters, it can still be true, contrary to Parfit, that we cannot have what matters in cases of fission: having what matters requires that there is a one-to-one correspondence between subjects.

2.1 Why Identity Cannot Matter in Survival

There are at least two primary arguments from Parfit for why identity cannot matter in survival. The first, the argument from fission, the singularist must reject for the sake of consistency.⁴ The second, which the singularist can accept, concerns the fact that psychological connectedness – the relation that must hold between adjacent subjects in order for them to count as psychologically continuous over time – is a matter of degree.

Parfit (1999) begins his argument from fission by showing that what matters to us, intuitively, is psychological continuity. To do so, he asks us to consider the following hypothetical scenario: Suppose that in order to survive you require an operation, which involves splitting your brain in two, disposing of one hemisphere, and then transplanting the other hemisphere into a body qualitatively indistinguishable from your own. Assume that a single hemisphere can support the whole of your previous psychology, so that there will be no disruption in psychological continuity between yourself as you existed prior to this operation and the being that exists afterwards. Many of us would believe that this procedure maintains what matters to us in survival.

⁴ The first argument is presented as depending only upon the thought experiment that establishes that what we care about is psychological continuity. A complete reconstruction of the argument (Parfit, 1999) depends upon additional reductionist premises that are inessential for the points being made here.

A second thought experiment is required to establish the conclusion that identity cannot be what matters. You are asked now to imagine that you undergo a procedure just like the previous operation, with the exception that this time both hemispheres of your brain are now transplanted to separate bodies, each one qualitatively indistinguishable from your own. This thought experiment shows that psychological continuity, as Parfit conceives of it, can be maintained twice over, thereby establishing that psychological continuity alone cannot preserve identity (1984: 261-265).⁵

Of course, if Parfitian singularism is to be coherent – that is, if we are to allow that fission may not preserve what matters – there must be another reason for thinking that identity is not what matters.⁶ And there are.⁷

This former reason is straightforward. For Parfit, what constitutes continuity over time has to do with the connections of similarity between adjacent mental states, and this can be a matter of degree. Therefore, for a psychological continuity theorist, if a later subject has a high degree of similarity between a later subject's and earlier subject's mental states, then that later subject has what matters in the survival of the earlier subject, is psychologically continuous over time with the earlier subject.⁸ However, identity is not a matter of degree; objects are either absolutely identical or not.⁹ Therefore, if what matters is psychological continuity, and connectedness is a matter of degree, while identity is not, then

⁵ Williams (1976), preceding Parfit, also made this point in what he described as the “reduplication argument.”

⁶ The treatment of Parfit's argument is brief. For more discussion of the details of Parfit's arguments, along with issues about interpretation, see Johansson (2010).

⁷ Note that there are arguments that identity is in fact maintained in fission, the most famous of which is due to Lewis. However, my goal is to address Parfit's challenge by accepting his assumptions, and then showing that the fission argument fails nonetheless.

⁸ See Schetchman (2001) for more detailed discussion.

⁹ In fact, Williams (1970) argues that this is a reason for rejecting psychological continuity theory as a theory of personal identity.

what matters in survival cannot be identity.¹⁰

2.2 Singularism

The second argument that identity cannot be what matters makes room for singularism. But, is there any positive motivation for being a singularist that does not rest on the identity reaction – the idea that only survival in the strict sense of preserving identity could coherently matter in survival? Well, in fact, we can make a distinction between what Belzer (2005) calls the “unity reaction” and the “identity reaction.” The unity reaction says that while you can identify with another person only if that person constitutes a unity, or is a singular object, this says nothing about whether that object is strictly speaking identical to you. The idea is that, because the identity relation is itself one-to-one over time, our conceptual apparatus of identification also requires one-to-one relations over time. Putting this in the terms of psychological continuity theory, only a being that has a unified consciousness or psychology is a candidate for having what matters in the survival of any other at any given time. This entails one-to-one correspondence over time, but not necessarily identity.

3. The Life Trajectory Theory

Having motivated Parfitian singularism, we will now consider a virtual immersion scenario, which casts doubt on the idea that psychological continuity theory provides the correct

¹⁰ There is a question here of whether it is appropriate to talk as if having what matters is an all or nothing matter. Whether it is will depend upon whether the relations, once they reach a certain threshold, entail that what matters is maintained. I have no particular commitments either way. Even my own claim that external relations matter, should it be expressed in completely explicit terms, would require explaining which relations are more important than others, and how, and how many are required, and so on. Being this explicit is beyond the scope of this paper however. The reader should note, however, that I will speak as if having what matters is all or nothing simply for sake of simplicity in expression. For more discussion of the issue of having what matters in survival being a matter of degree, see Lewis (1983).

account of what matters in survival.¹¹ I will then suggest and develop a hypothesis about what does matter in survival based on the results of considering this scenario.

3.1 Virtual Immersion

Before considering the thought experiment, it is important to note an assumption I will be making – that it is not just survival simpliciter we want in wanting to survive, but also to survive as a specific kind of thing: a person. After all, we could survive as a human organism in a persistent vegetative state, and we would count as the same human organism, but nothing that mattered to us would remain. In addition to knowing what standard psychological continuity theory says about diachronic identity, we also need to know its commitments concerning what makes a subject a person at all.

Concerning identity over time, the standard form of psychological continuity theory, succinctly characterized by Lewis (1983), consists simply of a commitment to similarity between a subject's adjacent mental states, together with causal or counterfactual dependency of a subject's current mental states on their previous mental states over time.¹² Regarding persons as kinds, the natural correlative commitment is this: necessarily persons are a certain kind of psychological entity.¹³ This is pretty plausible. For example, we don't consider non-psychological beings, such as rocks, even as candidates for personhood.¹⁴

¹¹ Others also reject psychological continuity theory. See Olson (1997) and Williams (1970) and (1976) for arguments against it in favor of bodily and biological continuity views. Each point out several problems with the psychological criterion of identity. However, as noted earlier, assessing non-psychological accounts of what matters in survival is beyond our scope here.

¹² See Shoemaker (1970) who points out problems with the causal-connectedness requirement. For problems with the similarity requirement, see MacIntosh (1993).

¹³ This does not entail that any given being that is a person is necessarily psychological, however. See Rudder Baker (1999) for a thorough exploration of the nature of this assumption.

¹⁴ When speaking of a person as not persisting over time, but rather at a time, we need a

The virtual immersion scenario, we will consider now, is one, which I argue, intuitively threatens our personhood, but also sustains personhood according to the psychological continuity theorist's criterion. The scenario therefore presents a counterexample to psychological continuity theory. It is based on Nozick's (1998) discussion of what he calls an "experience machine" – a machine into which a person can enter that will then provide that person with a never-ending supply of those experiences they find desirable. In this scenario, choosing to be virtually immersed, to enter the machine, involves choosing to identify oneself with a being in a situation similar to that of being brain in a vat, in which the corresponding subject's experiences do not accurately represent the external world, but instead, are entirely illusory.

Notice that, in entering the experience machine, a being within it would maintain their status as a person according to psychological continuity theory. This is because even though I offered only an explicit statement of a necessary condition for personhood for this view, we can, nevertheless, reasonably infer that the subject in the experience machine would meet this view's sufficient condition(s) for being a person. This is because that subject is psychologically continuous with the previous subject, which we can safely assume did count as a person. It would be unclear, then, why a being in the experience machine would lose their personhood according to a psychological continuity theorist.

criterion for individuating one person from another – for what makes a person a singular person separate from others – which naturally speaks to our concept of what it is to be a person altogether. One idea is that a person is the subject of psychological states or experiences that have a deep unity not shared between separate persons.¹⁴ Some, however, such as Hume (2000), Parfit (1984), Strawson (1997), and Unger (1990), have pointed out that psychological experience alone is insufficient to sustain any kind of a unity of consciousness. Kant (1999), in fact, found this issue so pressing that he gave it its own moniker "The Unity of Apperception." Even the neuro-scientific literature has coined an expression for it: The Binding Problem.

However, despite the fact that, according to psychological continuity theory, nothing is missing for having what matters in the experience machine, many of us, I believe, would recoil in horror at the decision to enter the machine, viewing the persistence of the thing in the machine as a mere simulacrum of what the person entering it once was, and so viewing the entrance into the machine as threatening what matters to us in our concern for our own survival. The reason for these doubts, in this case, is not that a psychological subject would cease to be, but rather that entering the experience machine threatens the subject's personhood altogether, something just mentioned as key for having what matters in survival. Insofar as there is any potential doubt about whether a being within the experience machine is still a full-blown person, it is an example that the psychological continuity theorist must address. Given our ambivalence about how to treat those seriously delusional as a result of some kind of mental illness or deterioration, it would seem that we already do entertain such doubts.¹⁵

If a subject's personhood must be maintained in order for that subject to have what matters in survival, and the experience machine threatens personhood, then this shows that one criterion for maintaining what matters in survival is that the subject in question must not inhabit an experience machine, or participate in any other brain-in-a-vat like scenario.¹⁶ Such scenarios, by isolating subjects from their external contexts, prevent them from the continued living of their life, required for maintaining a subject's personhood. I claim that

¹⁵ In contrast, Wilson (2005), in arguing against an agency-based criterion of personhood, claims that while a mentally deranged person's agency may be diminished, we should not conclude that therefore their personhood is also so diminished.

¹⁶ Parfit (2012: 17) endorses the idea that psychological subjects persisting as brains in vats would, in fact, preserve what matters, but the scenario he considers is one in which that brain in a vat maintains relations to the external environment, and still tracks those facts that a brain in a vat is capable of tracking.

what matters in survival is the continuation of what will be called a subject's "life trajectory." Its continuity depends upon the existence of the path of a subject of experience through an external context. That is, a life trajectory is the continuous path of a psychological subject through the external world, a path created and maintained by the subject's being interacting with that environment. This requires that their experiences accurately reflect the external relations they actually have to their external contexts. The life trajectory theory thus incorporates the idea that persons are fundamentally, and inextricably, tied to their external environments, a fact that, as we saw, can be illustrated by completely removing them from such contexts.¹⁷

3.2 Life Trajectories as What Matter in Survival

Having introduced the life trajectory theory, I now develop the view in more detail. The distinctive feature of this theory, of course, is that in order to preserve what matters in survival for some subject, a future being must not only maintain psychological continuity in the standard sense, but also continue that subject's life trajectory. What is it, though, to continue a subject's life trajectory? The reason continuing a life trajectory ceases upon entering the experience machine is that a subject cannot interact with their external environment. Because of this, they also cannot interact with their environments in the way that the subject would have had she not stepped into the experience machine. And this ability is what allows a subject to continue living that subject's life. On this theory, maintaining these properties is required to maintain a life trajectory. It thus has as a necessary condition that, in order for a potential successor to have what matters in an initial

¹⁷ This idea is also put forward in McDowell (1997).

subject's survival, that potential successor must continue to interact in the environment in the same way as they would have had they not entered the experience machine. Developing the theory, then, requires us to answer two questions: first, what is the appropriate set of extrinsic properties, and second, since I am committed to being Parfitian about the importance of identity, how does a potential successor, who is not identical to the previous subject, continue to maintain those properties?

To begin with the first question: A person's life involves facts about a psychological subject's relations to an external context over time. Many of those facts are unique to a particular life trajectory, such as those that locate the subject at a specific place and time. For example, my life is the life of a psychological subject who is her father's second-born child, a fact that individuates the beginning of my life trajectory as well as continuing to individuate it in virtue of my continuing to have that extrinsic property over time. My life is also the life of a person that includes a multitude of biographical facts, some current, others historical. For instance, my birth occurred at a specific time and place, and I am the sometimes-reluctant owner of three Catahoula canines. I am also the sole author of this paper. All of these facts individuate my life trajectory. Of course, similar facts individuate every other person's life trajectory. We can individuate life trajectories in the same manner as we might individuate the trajectory of any other object over time.

The extrinsic properties that subjects possess in virtue of having a life trajectory involve their relations to an external context. For example, if a subject is related to a book by owning it, then that entails that that subject has the property of owning a book. These extrinsic properties will, depending on the nature of the relation, come in different flavors: temporary, long-standing, and permanent. Examples of these kinds of extrinsic properties,

respectively, include: my now drinking a cup of coffee; my owning three dogs, and of living in Upstate New York; my now being my father's second-born child, and of being the author of this paper.

While extrinsic properties are held in virtue of facts about relations to an external context, not all of them depend upon current relations to that context. Some depend merely on their having originated in relations between a subject and their external context. Examples of these properties include the properties of being my father's second-born child and being the author of this paper. Speaking more abstractly, the fact that some of a subject's extrinsic properties do not depend on the current existence of the objects of those properties, and in virtue of which they have these extrinsic properties, explains why once one has acquired these properties, they are held permanently. I am still my father's second-born child long after he has died, and I continue to be the author of this paper even if it, and all of its instantiations, are destroyed.¹⁸

Now which of a subject's extrinsic properties, if any, must be maintained in order for that subject's life trajectory to continue? Well, surely it cannot be the temporary properties, since these are properties that come and go, that begin to hold and cease to hold, all the time, without threatening a subject's identity. And, therefore, the cessation of such properties, which would occur during fission, will still allow for a given subject to have what matters in survival. And, even though a life trajectory extends over time, generating more

¹⁸ But how then does the experience machine threaten these kinds of properties, if we have them even if the relata no longer exists? The answer is because merely having extrinsic properties is not enough. There is a certain epistemic uptake required for interacting with one's environment in order to continue living one's life. So even if strictly speaking the subject in the experience machine still has certain extrinsic properties, they are not expressing having them in the context of living a life, and this is a requirement on having what matters.

long-standing extrinsic properties, they are still properties that a subject can lose without ceasing to exist. Because all of these former properties come and go without any threat a subject's survival, fission products can also be said to be connected to a prior single ancestor for these types of extrinsic properties, since they too can claim to have once had them, just like any singular survivor of that ancestor could say. The only properties that could matter in survival, then, are the permanent extrinsic properties of a subject, those that once acquired cannot be lost.¹⁹ It is this collection of properties, then, that must be maintained by any candidate continuer of a psychological subject. Furthermore, the requirement that there must be continuity in a subject's permanent extrinsic properties over time is also a naturally plausible idea. It is, at least in part, the fact that subjects have these permanent properties that allows them to have a sense of continuity over time, a connection to their past and a shape to their future.

I now turn to our second question. Having identified the set of properties that must be maintained by a later subject to preserve what matters for a current subject, the question now is: how could a later subject potentially maintain these properties without also thereby being identical to the earlier subject?

The previous question about the preservation of permanent extrinsic properties has its roots in a problem posed by Butler (1736) to Locke's (1694) early psychological continuity theory of personal identity – the idea that a later subject is identical to an earlier subject just in case the later subject remembers having had the earlier subject's

¹⁹ Perry (1976) also raises the issue of whether having certain properties – for him, those that relate a subject to their past – are special in an account of personal identity, since no one but the subject could have them. Ultimately, however, Perry thinks that this is a consideration in favor of an identity theory of persons, unlike the current hypothesis under consideration.

experiences. According to Butler, the only way we can know if a later subject remembers being an earlier subject is if we know already that that later subject is identical to the subject of the event being remembered. This is because categorizing a mental state as a memory seems to require that the mental state the subject having the so-called memory accurately represents the past of that subject. This is what it is to have a memory. For example, if you have a memory of having gone to Niagara Falls, then that memory encodes the fact that it was you, the person remembering, who experienced going to Niagara Falls – that the subject of the memory is identical to the subject who had that experience. If this was not the case, so this line of thought goes, we would not call that a memory at all. As a theory of personal identity, then, the memory theory begs the question, since in saying that I have a memory of having experienced some event, this already assumes that you are identical to the subject of the remembered event.

The very same kind of worry arises for the idea that a later subject must maintain the permanent extrinsic properties of an earlier subject to have what matters. The life trajectory theory, which requires that the later subject must preserve the permanent extrinsic properties of an earlier subject, can be argued to presuppose identity in just the same way as the memory criterion does. The fact that a later subject possesses those properties entails that that later subject must be identical to the previous subject that had them. To illustrate, suppose you possess the property of being the author of a certain paper. Then on the life trajectory theory, anyone who can continue your life trajectory must possess that property as well. But only the person who actually wrote the paper can possess that property, and that person is you. It seems, therefore, that any later subject who legitimately continues your life trajectory, which includes the property of having written that paper, must

be identical to you.

In response to Butler's original objection to the memory criterion, several writers – most notably Shoemaker (1970) – have introduced a different notion of memory, one that does not define memories as having to be accurate in the previous way to count as memories, and therefore they are not subject to Butler's worry. On Shoemaker's account, which Parfit draws on, these types of memories, which do not presuppose the preservation of identity, are described as "quasi-memories," or as "q-memories." The idea is that a later subject's q-memories are indistinguishable from its predecessor's real memories, but they are not based on facts actually experienced by a previous subject strictly identical to the earlier subject.²⁰ In other words, there is a broader notion of memory that is not subject to Butler's objection Locke. On Parfit's view, the presence of such q-memories, when had in the right way, could be sufficient for having psychological continuity, without need to appeal to mental states that accurately represent the past of the rememberer. In just the same way that Shoemaker and Parfit are able to formulate a non-circular notion of psychological continuity based on q-memories, rather than actual memories, I suggest that the life trajectory theory can likewise be refined, to escape circularity, by appeal to "quasi-properties," or "q-properties," rather than ordinary properties. Given this refinement, the extrinsic property requirement on the continuation of a life trajectory theory now takes this

²⁰ Note that quasi-memories as described here must come from a person's psychological predecessor and not just from anywhere. See Sidelle (2011) for an argument that the causal requirement on the preservation of personal identity entails this. For Sidelle, the memory must be caused (not in necessarily in the normal way), in some appropriate way, by the current psychological subject's predecessor. To not require this, is to jettison the causal requirement altogether, and to allow for random doppelgangers to be psychologically continuous with a later subject. Memory-like experiences can be induced in any number of ways, of course, but these would not be memories at all, if not caused in the normal way, and would not even be quasi-memories, if not caused in the appropriate way. Rather, they would be fake or so-called memories.

form: if a future subject is to have what matters in the survival of an earlier subject – the continuation of that earlier subject’s life trajectory – then that future subject must possess the q-properties corresponding to the permanent extrinsic properties of that earlier subject.

3.3 Quasi-extrinsic Properties

But what are these q-properties, and under what circumstances does a future subject possess the q-properties corresponding to an earlier subject’s permanent extrinsic properties? The intuition is simple: a future subject has the q-properties corresponding to an earlier subject’s permanent extrinsic properties just in case that future subject can relate to their external context in a way qualitatively indistinguishable from the way in which that earlier subject did relate, and also continues to relate to that external context in the same way that the earlier subject would have related, at least with respect to the earlier subject’s permanent extrinsic properties.²¹ Now that I have stated the simple intuition, the next step is to give a precise definition or explanation of the nature of these q-properties. Doing so will require some discussion of the modal properties of the future subject – the candidate continuer for the earlier subject – and of the earlier subject.

Suppose that, in the actual world *i*, a subject A ceases to exist at moment *t*, and another subject B, psychologically continuous with A, comes into existence. In order for it to be true that subject B has the q-properties corresponding to A’s permanent extrinsic properties in *i*, two things must be true. First, at moment *t*, B must be qualitatively indistinguishable from A with respect to the permanent extrinsic properties A had at moment *t*. Second, B must be qualitatively indistinguishable from A with respect to the permanent

²¹ These two conditions – the first one is concerned with continuity in a previous subject’s past and current extrinsic properties, while the second condition is concerned with continuity with respect to an earlier subject’s future extrinsic properties. This incorporates both backward and forward-looking requirements for having what matters in survival.

extrinsic properties A would have had after moment t .

For example, suppose that in the actual world, A had the property of being the author of a certain paper, and suddenly A ceases to exist, and B comes into existence. B is psychologically connected to A to some determined degree. However, in order for B to be A's continuer, B must also be indistinguishable (to a certain determined degree) from A with respect to being the author of a certain paper. So, for instance, B must be recognized as the author of the paper, must remember having authored it to the extent that A did, identifies with that paper as their own, and so on. Secondly, B must also maintain the very same permanent extrinsic properties that A would have had after moment t . Which properties are those? Well, A's current permanent extrinsic properties, since those would be the only properties we know A would have had in the future. We know, for instance, that no matter what, if A existed, then A would have still had the property of being the author of a certain paper. To satisfy the second requirement, then, B must have a future in which B never loses that property – that is, it never becomes true of B that B only once had that property.

More formally, what could make B qualitatively indistinguishable from A with respect to having the permanent extrinsic properties A had at moment t ? Well, consider an alternative possible world j , just like the actual world except that, in that world, A had never existed at all, but that instead, the subject B is an exact psychological duplicate of A in the actual world i , as well as having all of the permanent extrinsic properties that A had acquired in i by moment t .

With respect to A's property of being the author of a certain paper, for B to count as A's successor, there must be some possible world in which B exists, A does not, and B is A's psychological duplicate as well actually having the property of having authored the

paper that A did in the actual world.

More generally, for each permanent extrinsic property P corresponding to A's in the actual world *i*, subject B must possess at moment *t* in the alternative world *j*, all of those very same properties. This confers the status upon B of possessing the q-property P corresponding to the analogue property P that A had in *i* at moment *t*. In other words, subject B has the permanent extrinsic q-properties corresponding to the permanent extrinsic properties of subject A at moment *t* just in case B could have had the very same permanent extrinsic properties A did, if A never existed in world *j*.

Now consider the second condition. What would make B qualitatively indistinguishable from A with respect to the permanent extrinsic properties A would have had after moment *t*? It's already clear that A would have had all of those permanent extrinsic properties that A had at moment *t*, given that those properties are permanent properties. But what of the permanent extrinsic properties that A could have had after moment *t*?

Presumably there are a number of different courses A's life could have taken after moment *t*, each of them conferring upon A a different set of permanent extrinsic properties in different scenarios. For example, A could have decided to have children, or to write a book. Or, A could have been born in a different location, or had different parents, and so on. This is all true. However, the second condition does not state that B must have the permanent extrinsic q-properties corresponding to those that A could have had after moment *t*. What the condition requires is that B must be indistinguishable from A with respect to the permanent extrinsic properties A would have had after moment *t*.

The second condition, then, involves a counterfactual. At least one way of

evaluating counterfactuals for truth is to see if in all those worlds most similar to our own, in which the antecedent holds, the consequent also holds. In other words, if in all of those worlds most similar to ours in which A exists, A has a certain permanent extrinsic property after moment *t*, then that is a property A would have had after moment *t*. Now which properties, after moment *t*, can we know will hold of A in all worlds most similar to our own? Well, I think it is reasonable to assume that these worlds will be those in which everything up to and including moment *t* is the same, save for A's failure to exist. For example, if at moment *t* A has the property of being an author of a certain paper, then in any world most similar to our own that is after moment *t* in which A exists, A will still have that property, given that properties like these are, by definition, permanent properties – properties that a person cannot lose save for their failure to survive.

Now how do we know which permanent extrinsic properties A will have in all worlds most similar to ours after moment *t*? Well, since some of A's permanent extrinsic properties after moment *t* will vary across these worlds, the only properties we know will hold in all of those worlds closest to our own, will be those that A already had at moment *t*. Therefore, the permanent extrinsic *q*-properties B must have that correspond the properties A would have had, after moment *t*, are all and only those permanent extrinsic properties that A did have at moment *t* in the actual world *i*.

Now what has to hold of B in order for B to have the *q*-properties in question? Note that while the first condition concerned only A's past and present permanent extrinsic properties, the second condition concerns the future permanent extrinsic properties that A would have had after moment *t*, which were determined to be the same as those that A had a moment *t*. B's satisfying this condition then will concern B's future after moment *t*. In order

for B to have the permanent extrinsic q-properties in the actual world *i* corresponding to those permanent extrinsic properties that A would have had after moment t, it must be true that there is no world after moment t in which B exists, and B's loses any of the permanent extrinsic properties that A has in all of the worlds most similar to ours after moment t. In other words, it is impossible for B to continue A's life trajectory, if there is a possible world, after moment t, in which B somehow loses those permanent extrinsic properties that A would have had after moment t. For example, given that A did author a paper at moment t, and holding moment t fixed, there are no worlds similar to our own in which after moment t, A somehow loses the property of having authored a certain paper. For this reason, there can be no worlds, after moment t, in which B somehow loses that very property either.²²

More generally, for each permanent extrinsic property P corresponding to A's in the closest possible worlds after moment t, subject B must possess those very same properties in any possible world after moment t. If condition holds, this confers the status upon B of possessing the q-property P corresponding to the analogue property P that A would have had after moment t.

4. Applications: Fission and Virtual Immersion

Having developed the life trajectory theory, I will now return to the central concern, showing how this hypothesis is consistent with Parfitian singularism, in that it rules out fission scenarios as those that preserve what matters in survival. In addition, we will explore how this theory provides further insight into the experience machine and the possibility of virtual immersion, thereby providing further support for the theory.

²² Not that this does not entail that B cannot change the way they relate to those extrinsic properties over time from the way A would have done, only that B cannot ever lose that property.

4.1 Fission Scenarios

To see why the life trajectory theory rules out fission scenarios, I will consider a scenario in which, once again, a psychological subject A has authored a certain paper. Now consider A at a particular moment t , after having done so, and suppose that at t , A undergoes a Parfitian procedure that ends with the creation of two subjects B1 and B2, both psychologically continuous with, and yet distinct, from A. That is, suppose that A fissions. Now, according to the life trajectory theory, can we have what matters in fission scenarios? Well, we can only if, in addition to maintaining psychological continuity, both B1 and B2 can continue A's life trajectory. And what this means, on this theory, is that both B1 and B2 must possess the q -properties corresponding to the permanent extrinsic properties of the subject A. Now, since, by assumption, A wrote the paper in question at some point prior to t , it follows that, at t , the subject A has the property of being the author of that paper. And from this, it follows that, if both B1 and B2 are to continue the life trajectory of A, both must have the q -property corresponding to the property of being the author of a certain paper.²³

²³ Parfit argued that non-branching psychological continuity, which in his earlier work served as his definition of identity, cannot be what matters in survival, because what matters in survival is a matter of the intrinsic relations holding between earlier and later subjects, in Parfit's case the intrinsic relations of psychological connectedness between earlier and later subjects. However, in fission scenarios, each fission product can claim to be intrinsically psychologically related to their predecessor. Whether there are two or not is an irrelevant extrinsic factor. Therefore, one-to-one correspondence between earlier and later subjects is inessential for what matters in survival. There is a worry that this argument might also apply to the life trajectory theory. According to the life trajectory theory, if there is only one later subject that meets the requirements for continuing an earlier subject's life trajectory, this must depend upon the intrinsic relations between that earlier and later subject. But now suppose that we have two subjects, each of whom separately can satisfy the requirements for having what matter in survival. Now since each fission product can have what matters, in terms of their intrinsic relations to their predecessor, it should not matter whether there are one or two of them. This means that one-to-one correspondence over time is inessential for what matters. The life trajectory therefore fails as a singularist theory of what matters. However, the idea that having what matters can depend only upon

But can fission products have the q-property of having authored the paper? Relying on the two previous conditions, the answer must be no. The first condition was that if B1 and B2 have the q-properties corresponding to A's extrinsic properties, there must be a world *j* at moment *t* in which A does not exist and in which both B1 and B2 have the very same extrinsic properties at *t* that A had in the actual world *i*. Second, it must also be true that there are no possible futures in which B1 and B2 lack the permanent extrinsic properties that A would have had after moment *t*.

Regarding the first condition, I argue that B1 and B2 cannot satisfy it. If they could, then, there must be a possible world *j* in which both B1 and B2 at moment *t*, each psychological duplicates of A, could both be the author of a certain paper. However, this is not possible given that only one person at a time can be the author of a certain paper. What could be true in *j* is that B1 and B2 co-authored the paper. But having the property of being a co-author would not make B1 and B2 able to continue A's permanent extrinsic property of being an author in a way qualitatively indistinguishable from the way A had that property at moment *t*. And, the reason is that being an author is a property that has a very different qualitative character from the property of being a co-author of a paper. For instance, at moment *t*, A was recognized as the author of the paper, remembered having authored it, identified with that paper as their own, and so on. In contrast, being a co-author of a paper entails very different ways of being able to relate to the external context. If you are a co-author of a paper, for example, you are not recognized as the author to the paper, you recall

the holding of intrinsic relations is an assumption that I claim derives its plausibility from the fact that the holding of identity relations must depend only upon the holding of intrinsic relations. But theories of what matters in survival are not identity theories, and therefore they can appeal to non-intrinsic factors as part of what matters, such as the existence or non-existence of another potential continuer of a life trajectory.

having authored only parts of it, and you do not identify with that paper as only your own. Fission products, therefore, cannot meet the first condition for having the q-counterparts of A's extrinsic permanent properties.

Now what about the second condition? The second condition demands that both B1 and B2 cannot lose those properties that A would have had after moment t.²⁴ As before, however, by definition, the property of being an author is something that two successors cannot both have. While it is true, that both B1 and B2 can claim to be psychologically continuous with something that once was the author of a certain paper – and this is not something that just anyone can claim. Still, having once been the author of a certain paper no more counts as having that property than would merely having once had all of my memories count as continuing my psychology. In this particular case, neither fission product has what is required for what matters in survival. The best they can do is sustain the past tense version of this property, and this violates the second condition – that the successor of A must never lose the permanent extrinsic properties that A would have had after moment t.

In sum, for certain permanent extrinsic properties, such as authorship, it is possible for fission products to have only the past tense or shared counterparts of these properties, neither of which qualifies as having the corresponding q-property. Fissioning, then, violates

²⁴ One potential objection to this criterion is that it begs the question, for suppose that at moment t in the actual world, A fissions. What permanent extrinsic properties would A have after moment t then? Well, it would seem that because there are two people, instead of one, there are no permanent extrinsic properties that A would have after moment t, since A has ceased to persist, or no longer survives in a way that makes having permanent extrinsic properties possible. The issue can also be put this way: in assuming that there are permanent extrinsic properties haven't I guaranteed that fission cannot preserve what matters in survival? My answer to this question is "yes." All of this I will admit to. What I will say though is that the idea that we have permanent extrinsic properties is far more basic than the idea that we can survive fission, so if anyone is begging the question, it is the fission sympathizer, not myself.

the requirements for the continuation of a life trajectory, and therefore fails to maintain what matters in the survival of persons over time.

4.2 Virtual Immersion Scenarios

Now that it has been shown that fission cannot preserve what matters in survival, I will turn to some intuitions about virtual immersion. As it turns out, the life trajectory theory can explain and predict a range of intuitions about these cases.

In the experience machine case, we imagined the horror and anxiety we would feel about the possibility of identifying with a being immersed in a world in which their experiences were entirely de-correlated with facts about an external context. The explanation for this horror was that, in such a scenario, we lose what matters for our survival due to our lack of being appropriately connected to an external environment, and therefore suffered the loss of our personhood.

But now, instead, consider the anticipation we might feel if all psychological subjects could rid themselves together, en masse and interactively, of the shackles of bodily decay by immersing their psychologies within a shared virtual world in which they are maintained independently of their bodies. Suppose that, somehow, our aging, dying biological bodies become obsolete. Surely, at least some of us would not view these scenarios as constituting a threat to what matters in our survival. Indeed, we might, and probably would, look forward to a scenario like this as a way of achieving immortality.²⁵

Earlier, then, we saw that our reaction to the experience machine, to being virtually immersed, was one of horror. But in this more recent case, as just noted, we might also

²⁵ For details about ways these possibilities might be realized and their potential implications, see Chalmers (2010). Sauchelli (2017) addresses how such “life extending” techniques may or may not fit with certain narrative conceptions of what matters over time.

have the reaction of anticipation. Standard psychological continuity theory predicts that we do have what matters in cases of virtual immersion, and therefore can predict our reaction of anticipation, but it cannot predict our reaction of horror, as we saw. In contrast, it appears that the life trajectory theory can predict our reaction of horror, but it cannot predict our reaction of anticipation. Therefore, standard psychological continuity theory gets it wrong for the first virtual immersion case, but right for the second one. And, it appears that the life trajectory theorist gets it right for the first case, but wrong for the second case.

However, as it turns out, the life trajectory theorist can, in fact, predict correctly for our second virtual immersion case. To see this, we need only reconceptualise what it means to exist in an external context. Our natural assumption is that these kinds of contexts must be identified with spatial-temporal situations. But this assumption might be rejected if technology advances to the point of allowing for purely virtual interactions. In this case, the notion of a mind-independent external world need not necessarily involve connections to an ordinary physical environment. We could instead think of a purely virtual environment as mind-independent, as external, assuming that we have shared experiences of that virtual environment together with the ability to affect that shared environment in certain predictable and systematic ways. If this is how we understand immersion within a virtual environment, then we might still reasonably ascribe extrinsic properties to subjects in contexts like these. The life trajectory theorist could then say that the second case preserves what matters in survival after all.

The life trajectory theory is preferable to standard psychological continuity theory, then, because it has the resources to predict our reactions to the two different ways considered here of being virtually immersed – both our horror at the prospect of life in the

experience machine and our acceptance, even delight, at the prospect of eternal life in a shared interactive virtual scenario.

5. Objections

While there are several objections to the life trajectory theory, I can now consider only three important objections. The first questions whether there is any real disagreement between the standard psychological continuity theorist and the life trajectory theorist. The second considers different ways fission might be realized that raise the possibility that it could preserve what matters in survival. The third considers whether permanent extrinsic properties have enough intuitive importance that a subject losing them truly loses what matter in survival.

5.1 Understanding the Fission Problem

The point here is not that there are differences between fissions cases and cases of singular survival. The fission sympathizer can even consistently allow that there are differences, but that there are differences does nothing to disprove the idea that fission could be a form of survival. It depends on the nature of the differences in questions. The issue is not to simply find some difference between fission and singular survival, but to find a survival mattering difference. The fission sympathizer can argue that while I may have shown that fissioning compromises something practical – a life worth living perhaps – it does not compromise what matters in survival.²⁶

While there are practical differences between fissioning and not, these differences are only survival mattering differences if they are metaphysical differences. After all, the fission scenario was compelling to psychological continuity theorists as a case of survival

²⁶ Wolf (1986) points out that there would be severely negative practical consequences to fissioning.

just as good as ordinary survival because it was thought that there were no metaphysical differences between those cases, apart from the failure of identity preservation. If the life trajectory theory does not distinguish between fissioning and not, on metaphysical grounds, then the theory has failed to answer Parfit's challenge. However, the life trajectory theory does not merely claim that there are practical differences between fission and non-fission cases. The claim is that extrinsic properties matter in survival as illustrated by considering the experience machine, and that these extrinsic properties are metaphysically constitutive of what matters – the continuation of a life trajectory. As we saw, in considering the fission scenario, the inability to continue a life trajectory was a matter of the inability to have the appropriate q-properties – a metaphysical, not a practical matter. As it turns out, then, there are deep metaphysical differences between cases in which we fission and those in which we do not according to the life trajectory theory.

5.2 Fission Scenario Variants

So far fission has been rejected as a way of surviving just as good as singular survival on metaphysical grounds. But there might be other ways of fissioning that maintain everything that the life trajectory theory requires. If so, only one particular way of fissioning, rather than fissioning altogether, would be ruled out.

One non-standard fission scenario is explored by Martin (1995) known as “fission rejuvenation.” In this scenario, we suppose that when we are, say, 30 years old, a scientist offers us the opportunity to undergo fission, and to then continue our life as before. Meanwhile, our unconscious fission product remains physically preserved until our death, at which point this fission product, who has been having its psychological states updated via chip implants, awakens and picks up where we left off. We can imagine this continuing

indefinitely. Again, we seem to have a case of fission, and one that meets the requirements of the life trajectory theory for what matters in survival. However, it is questionable whether this is truly a case of fission or simply of sophisticated body cloning. That this is a true case of fission would need to be established before we could draw any conclusions about the life trajectory theory.²⁷

5.3 Extrinsic Properties and What Matters in Survival

It may seem odd to say that having been born in a certain location at a certain time is something that would intuitively matter to us in survival. However, we must be cautious in the interpretation of the claim that what matters in survival is having certain q-properties. The claim is not driven by the intuition that what matters to us in our survival is the continuation of certain extrinsic properties, just like the belief that fission maintains what matters is also not driven by intuition. On the life trajectory theory, the consequence that we should care about the continuation of extrinsic properties is supposed to follow from our intuition that we fail to have what matters in the experience machine case, where our connection to an external context is lost. To account for this intuition, it was then conjectured, not deduced, that part of what matters in our survival is the continuation of our life trajectory, an idea that was analyzed in terms of the continuity of certain extrinsic properties over time. Caring about such properties is, then, a consequence of the overall view, not a starting point, just as caring about fission products was a consequence of caring about psychological continuity. In other words, the closure principle for the intuitiveness-operator is false. Simply because a claim is intuitive, and some other claim follows, does not mean that the second claim is likewise intuitive.

²⁷ See Martin (1995) for reasons for thinking it truly is a case of fission.

6. Concluding Remarks

I offer a theory, according to which, certain extrinsic q-properties must be maintained in order for a future subject to preserve what matters for the survival of a current subject. I argued that some of these permanent extrinsic properties are such that they – or rather, their corresponding q-properties – can be possessed by no more than a single future subject, thereby supporting Parfitian singularism, the view that, even though identity is not what matters, at most a single future individual can preserve what matters.²⁸ As we also saw, the theory can accommodate other intuitions as well, those concerning cases of virtual immersion. Since standard psychological continuity theory cannot accommodate as many of our intuitions as the life trajectory theory, it ought to be rejected in favor of the latter theory.²⁹ What matters in survival is more than the internal relations that hold between earlier and later subjects, external relations matter too. The life trajectory theory is an account of the role those relations play in having what matters.³⁰

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²⁸ The position explored shares similarities with other views, but is still distinct. In particular, the externalist aspect of the life trajectory hypothesis is not new, and neither is the Parfitian view of identity. However, their specific combination is new. For comparison, Whiting's (2002) work supports Parfitian singularism, but is driven by internalist considerations. In contrast, Lindemann's (2014) work on personal identity is externalist, but hers is one focused on social relations.

²⁹ As a matter of fact, the theory itself could be construed as neutral on whether this is a theory of identity or of survival. However, to take it as a theory of identity would take someone with some pretty serious and controversial externalist leanings. Leanings I am certainly not prepared to take on. And, besides my project was to defuse Parfit – to focus on the issue of what matters in survival, not on identity.

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