

Nondestructive Mind Uploading and the Stream of Consciousness

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Abstract

A common interpretation of wakeful, nondestructive mind uploading is that the person with the postoperative original body exclusively persists the preoperative identity and that the person with the upload's body is some sort of identity copy. A frequent argument supporting this claim is that the preoperative person's stream of consciousness attaches exclusively to the postoperative person with the original body. By implication, the person with the upload's body spawns a new stream of consciousness, implying copy identity status. I argue that this is not the best metaphysical model of what happens in nondestructive uploading in the context of a stream of consciousness interpretation, and defend an alternative model which has generally received little attention in the existing literature: the branching identity model.

Keywords: mind uploading, personal identity, stream of consciousness, metaphysics

Introduction

A common interpretation of wakeful, nondestructive mind uploading (or cloning for that matter) is that the identity associated with the person prior to the procedure (the *preoperative person*) will persist exclusively in association with the original body following the procedure and that the identity associated with the upload will be that of a new person, commonly referred to as a *copy*, a pejorative term indicating a failure of the ostensible goal to enable the preoperative person to actually *experience* becoming an uploaded individual [Piccinini 2021]. One reasoning behind this interpretation is a presumed persistence of the preoperative stream of consciousness in its own brain and body, thereby failing to “transfer” (scare quotes to be explained below) that stream to the upload's brain and body, thus with some other stream born anew in the upload, one with no particular experiential or identity relation to the original person [Shermer 2017]. This article argues that such an interpretation is not the most accurate one we can come up with, and advances an alternative interpretation, known as *branching psychological identity*, or just branching identity, as a more accurate metaphysical model of what happens to the stream of consciousness during wakeful, nondestructive mind uploading.

I first present the claim being addressed, called the *conjecture* and defended by the *general description*. I then present the theory of identity it is predicated on, stream of consciousness identity. I then investigate whether such a theory of identity is a sensible foundation for analyzing thought experiments such as wakeful, nondestructive mind uploading. I do this by scrutinizing the stream of consciousness's external traits (primarily vision) and its internal traits (our diachronic stream of speciously experienced moments). I then consider another common defense of the stream of consciousness claim regarding mind uploading, namely the stream's purported continuity at various levels of diminution of neural activity, and show that such arguments are rarely well understood and stand at odds with contemporary medical practice and societal norms regarding real-world patients. I then present

an alternative identity model, branching psychological identity, and show how it interprets wakeful, nondestructive mind uploading.

The Conjecture

Let us begin by formally stating the conjecture under consideration:

Conjecture: If I upload my mind in a wakeful and nondestructive manner, my preoperative personal identity will, in its eventual postoperative form, remain singularly associated with my original brain and body, while the upload will receive a newly spawned and unrelated postoperative identity. The upload's person will have no direct identity relation to my preoperative self, just a second set of my memories. In effect, it will be a *new identity copy*, not a preserved continuation of my original identity. Consequently, the procedure will fail to reassociate my preoperative identity with the upload's body, and most critically, will fail to enable my preoperative self to actually *experience* mind uploading with its implied postoperative perception of having a new body in a new location. Rather, I will simply continue to feel myself associated with the preoperative body throughout, and following, the procedure.

The upload will emerge with his or her own convincing sense of self, and with an associated conscious experience of identity continuation. As such, they will feel that the procedure successfully achieved the goal of preserving the original identity as themselves and the goal of *experiencing* uploading. But none of that matters. They will simply be wrong, on the basis of third party judgments, namely that of the other postoperative person associated with the original body, who will of course be equally convinced of the procedure's failure. That other person's judgment will take precedence over the upload's judgment.

Common phrasings of the conjecture often describe the goal of mind uploading as *transferring* a person's neurological, psychological, and metaphysical traits from a brain to an upload's physical receptacle [Corabi, J. & Schneider 2012; Shermer 2017], some futuristic computer that implements neural functions, or perhaps an ostensible biological clone if the reader prefers such scenarios. I do not conceive of identity as a physical concept that subscribes to physical properties however, such as spatial location or movement. Abstract identity has various *relations* to physical objects, or is *associated* with, or *instantiated* by, physical objects, but is not physically contained inside those objects like a homunculus inside a box. I advocate that personal identity is more like a Platonic *type* than an *occurrence* or *token* [Wiley 2014; Walker 2014]. Types are nonspatial abstractions: patterns, information sequences, and in the case of identity, semantic labelings of other types, such as person patterns. We will see below that information is a *type* whereas physical instantiations of information are *tokens*, and that multiple tokens of a type don't imply multi-type existence (a violation of type properties), but merely multi-instantiation of a shared type. When identical tokens diverge in state, they then represent disparate types—and the point of debate is whether the branching event itself affords an asymmetrical type-labeling to the tokens such that some carry subjective (or objective) priority over others (“original” vs. “copy”). When identity is seen as a type, it then becomes a genuine category error to ponder how identity might be physically located somewhere (such as inside your head) or how it might fly through the air to a new physical location (such as an uploaded mind's computer or a clone's head). In this way, I don't ask whether or how mind uploading *transfers* a person's identity through space from a brain to an upload. Instead, I ask by what properties of identity and its relations to bodies it might become *associated* with, *instantiated* by, *survived* by, or *preserved* by an upload.

General Description of the Conjecture

The conjecture is often defended in the following way, which I will call the *general description*:

General Description: If you undergo wakeful, nondestructive mind uploading, you will not experience a shift in perspective over to the upload, i.e., your stream of consciousness will not “transfer” to the upload. You will continue to view the world from the vantage point of your original location in your original body as if nothing happened. This implies that your preoperative identity will remain associated with your original body and the procedure has failed to grant you the experience (and the likely intended goal) of uploading. Likewise, whatever stream of conscious experience the upload might have is irrelevant to your preoperative experience, stuck in your original body from start to finish. As such, the upload is “just a copy” and their perspective—and opinion—on the outcome can be dismissed as metaphysically irrelevant to your original goal of experiencing uploading.

At the outset, this popular phrasing of the *general description* is problematic because it presupposes the conclusion of the question it purports to investigate, i.e., it is circular reasoning. The various applications of the word “you” woven throughout the *general description* are the circular part. Such phrasing preassigns, by premise, the one bonafide identity to only one of the postoperative people (obviously to the original body and its associated identity, to the detriment of the upload). Not only is the word “you” applied fallaciously to assign the identity to its destination in advance, it also a priori designates which person’s experiential perspective will be introspected to interpret and judge the outcome of the procedure, namely the perspective associated with the original body and its visual experience via that body’s eyes viewing into the world. The circular error is that if the entire point of objectively analyzing the conjecture is to seek an analytical conclusion, then we can’t simply presuppose the very conclusion we are seeking; we can’t assign “you” and “new” to the various postoperative people at the outset. And we can’t use that presupposed labeling of “you” and “new” to cherry-pick whose perspective will serve as our evidence for analysis and whose we will dismiss as irrelevant “copy” (the entire point of the philosophical inquiry). And we can’t land at some conclusion implied by that evidence, which of course will comport with the conclusion we presupposed at the beginning, without having fully succumbed to circularity. And finally, we can’t conclude from this entire (circular) line of reasoning that we have discovered or proven anything about the underlying truth of the matter. The entire thought experiment was a nonstarter based on the *general description*’s ingrained biases and consequent circular phrasing. Here’s what the *general description* might look like if we remove the circular logic but attempt to maintain its biased favoring of the original body over the upload:

General Description: If you undergo wakeful, nondestructive mind uploading, you will not experience a shift in perspective over to the upload. The postoperative person experiencing a stream of consciousness from the perspective of the biological body (person B) will view the world from the vantage point of the original body in its original location, feeling that the procedure has failed, while the postoperative person experiencing a stream from the upload’s body (person U) will view the world that way instead, feeling that the procedure has succeeded. We will grant priority to person B on the basis of his or her stream of conscious experience, while at the same time dismissing person U’s stream of conscious experience as uninformative of the metaphysical fate of the preoperative person. Consequently, your preoperative identity will be judged to remain associated with the original body and we will conclude that the procedure has failed to grant your preoperative self the experience (and the likely intended goal) of uploading. Likewise, person U will be “just a copy” and their perspective and opinion on the outcome can be dismissed as metaphysically irrelevant to the preoperative goal of experiencing uploading.

Why might the conjecture and general description feel intuitively sensible?

The conjecture and the *general description* can feel initially tempting based on presumed properties of the stream of consciousness throughout the procedure. For example, one might assume that the person preceding a wakeful, nondestructive mind uploading procedure will surely have the experience of remaining stuck in their original body and that the procedure has failed to reassociate their identity with the upload. Imagining instead what it might *feel* like to emerge in the upload's body is frequently disregarded, and likewise, whatever conscious reflections the upload has about their experience are dismissed as those of an irrelevant copy. A copy of what exactly? Such details are rarely clarified in casual presentations of the topic, yet those details are critical to our analysis. For example, it is true that the physical instantiation of information patterns (the organization of neurons or computer components to implement a particular suite of neural pathways and firing patterns) has been recreated in a second physical instance, i.e., a second set of matter. We call this process and the result a *physical copy* (a new token), and there is nothing necessarily pejorative or judgmental in the usage of the term "copy" to describe this physical process of producing a second token of the original pattern or type. But whether *metaphysical* features have been *copied* (aka duplicated) or merely *doubly-instantiated* in their Platonic type/token relationship is not immediately clear. One interpretation of Platonic realism is that no copying of the *psychological person* has occurred during the initial stage of physical double-instantiation; only a second tokenization has occurred. Admittedly, the double instantiation of the *type* will branch into two separate, singly instantiated types upon the subsequent divergence of any underlying physical (i.e., neurological) state, such as differing sensory stimuli from the two bodies' environments, which will propagate to psychological differences and then on to experiential and identity differences [Wiley 2014], but that branching event could be a metaphysical *mitosis*, i.e., a *symmetrical division* of a prior single entity into two subsequent entities of equivalent descent primacy from their progenitor. Mitosis is different from copying in that there is no original and no secondary, just two entities (persons in this case) where there was previously one. It isn't at all implicit that the metaphysical branching of one stream of consciousness into two has *asymmetrical* properties with regard to identity. This point is the thrust of this article. In the objections section at the end of this paper, I describe in greater detail how these properties of realism operate, both in the case of people and in some analogous information pattern examples.

Stream of consciousness identity

Philosophy has produced several theories of identity and its relation to persons, minds, brains, and bodies. Major contenders include body identity [Parfit 1984] (identity is indicated by objects or conglomerations of matter, i.e., groups of atoms), nonbranching psychological identity [Parfit 1984] (identity is indicated by memories, popularly attributed to John Locke in the 17th century), closest continuer identity [Nozick 1981] (identity attaches to the later person deemed most similar to the earlier person), and spatio-temporal identity [Corabi, J. & Schneider 2012; Searle 2005; Wiggins 1967] (identity is restricted to continuous movement through 4D spacetime in the same way as physical objects). There are many less popularized models as well, such as Bamford and Danaher's social identity [Bamford & Danaher 2017]. The existing model closest to the stream of consciousness model underlying the *general description* is phenomenal identity, in which identity is indicated by diachronic streams of experience [Dainton 2004]. Careful analysis of most of these models shows them to be rather poor models of metaphysical personal identity. Some encounter paradoxes and contradictions of logical reasoning, as shown by Parfit. Others potentially commit serious category errors regarding the fundamental properties of abstract identity (e.g., spatio-temporal identity with its imposition of physical traits of location and movement, as explained earlier). These other models are not the thrust of the *general description* and its intended defense of the conjecture, so their implications for mind uploading will have to be left to other writings. This article only considers

the validity of stream of consciousness identity, especially as it is sometimes used to defend the conjecture.

The conjecture is generally presented in terms of *stream of consciousness identity*, a model of identity that assigns personal identity to purportedly persistent temporal streams of *experience*, i.e., consciousness, essentially Dainton's phenomenal continuity identity model [Dainton 2004, Dainton 2008]. Curiously, I find myself in near perfect disagreement with Dainton's conclusions regarding phenomenal and psychological continuity in his own VR-4 scenarios (i.e., Nozick's experience machines, or for lack of a lengthier description, the technology underlying the plot of the film *Total Recall*) [Dainton 2008]. To avoid disrupting this paper, I have pushed my counterargument to Dainton to the end. For now, let's plunge forward into stream of consciousness identity and its implications for wakeful, nondestructive mind uploading.

So, a supporting argument of stream of consciousness identity will be based on an interpretation of the preoperative person's stream of consciousness and what it would (presumably) feel like to be that person, with their stream, throughout the procedure. We saw this in the *general description*. Let's explore whether the stream of consciousness has the necessary properties to support such an argument, hopefully in the less circular rephrasing offered above. We will first consider the external traits of experience (vision in particular) and then the internal traits (our diachronic stream of speciously experienced moments).

Visual experience

It can feel initially obvious that a person would have the experience provided in the *general description* when undergoing mind uploading. And much of that feeling comes from a person's visual sense of their surroundings (we will consider the inner qualities of the stream of consciousness, not quite so dependent on external stimuli, in the next section). After all, when we conclude that our stream of consciousness would seem to remain associated with one body instead of the other *on the basis of our personal streamed experience during the procedure*, we are making an observation about where we seem to be and what body we seem to inhabit. The *general description* claims that throughout the procedure we will have the experience of remaining "behind the eyes" of the original body instead of relocating to a spot behind the eyes of the upload. So let's explore that expectation.

Being moved while asleep, and entering virtual reality

If the maintenance of our metaphysical personal identity depends on experiencing a smooth continuity of our sense of location from moment to moment, then what should we make of a situation in which we are moved from one room to another while we are asleep [Wiley 2019]? Parents transport their children around while asleep all the time. We readily fall asleep in various vehicles, and while the interior of the vehicle may be recognizable upon our awakening, we nevertheless immediately recognize that our broader location has changed. Such experiences do not conform to a smooth continuity of our perception of location from one conscious moment to the next. Rather, we experience an abrupt and discontinuous change in our very real location between consecutive conscious experiences, albeit separated in time. We never judge our personal identity to be replaced with a doppelganger as a result of being moved while asleep. Conclusion one: the preservation of personal identity cannot possibly depend on experiencing a smooth continuity of our perception of physical changes in our true location.

Likewise, we might be moved to a location that is identical to our previous location. Consider a scenario in which we fall asleep in a fairly simplistic visual environment such as a room with minimal furnishings. If we are once again moved, we could very well awaken and fail to distinguish our surroundings from the prior room. We would consider our identity preserved in this scenario. So, when our senses mislead us into believing we haven't changed location when, in fact, we have, our identity survives the experience nonetheless. Conclusion two: the preservation of our identity cannot depend on

our having an *accurate* perception or understanding of our location based on the *presumed* location evidenced by our senses.

Perhaps sleep is the confounding factor. But if the maintenance of our personal identity depends on our *wakefully* experiencing a smooth continuity of location, then what happens when we put a virtual reality headset on and find our visual (and auditory) experience—and our sense of location and perceived body—instantly relocated to a new *perceived* location? Multiple psychological experiments conducted with virtual reality confirm that subjects can experience an inner sensation of alternate body ownership by mere visual portrayal. No one has ever considered these experiments to render the subjects' streams of consciousness as copies or put their personal identity at risk of metaphysical erasure [Slater et. al.]. Conclusion three: the preservation of our personal identity doesn't require a continuity of perceived location or body even while fully awake. Even though true teleportation is impossible, simulating the *conscious experience* of teleportation or of sudden new body ownership imparts no harm to our metaphysical identity.

To summarize:

1. Experiencing a discontinuous change in location when waking from sleep has no effect on identity.
2. Experiencing a fallaciously continuous location when waking from sleep has no effect on identity.
3. Experiencing a discontinuous change in location, or even of body, while awake has no effect on identity.

Consequently, it would seem that identity has the following traits regarding external conscious experience:

- A visual experience of discontinuous location or body neither proves we have actually moved or changed bodies, nor puts our identity at risk.
- A visual experience of continuous location or body neither proves we haven't actually moved or changed body, nor ensures we are in the location or have the body about which we believe, yet does not put our identity at risk.

Identity is demonstrably neither dependent on our *awareness* of continuous location or motion (sleep), nor on an *experience* of continuous location or motion (virtual reality). By all accounts, our visual experience of location, motion, and perceived body has no causal relation to our identity. So why should we consider descriptions of such continuous experiences during a mind uploading procedure as indicative of identity status, either in favor (as applied to the original body) or against (as applied to the upload)? Apparently, we can't easily rely on our conscious perception of our *apparent* location or body to support the assertion that the preoperative identity has a stronger association with the original body than the upload's body. This realization implies that the *general description* actually provides no information about the conjecture's validity.

At first, this exploration of the implications of visual experience may seem irrelevant. After all, we don't consider blind people to exist in a state of contentious identity status. But vision is merely an easy example to analyze. Any of our senses can be subjected to the same sorts of experimental manipulations described above and we should expect to draw comparable conclusions about the nature of identity in those cases as well, such as touch, as exemplified by the infamous *rubber hand* illusion. The point is that we apparently cannot use our sensory-fed stream of conscious experience of our external surroundings (including sensory-inspired perceptions of our bodies) to inform us about our identity one way or another.

In more startling terms, neither person resulting from a mind uploading procedure can determine via their sensory and perceptual experiences if they are the original body or the upload. *Read that again:*

Anyone undergoing nondestructive mind uploading won't actually know which person they are when the procedure has concluded!

This is because they cannot necessarily trust the evidence of their own senses, and that is the only evidence available to inform them of who they are. But if you can't necessarily know which postoperative person you are, how can you seize priority to judge the outcome just because it superficially appears that you are associated with the original body in the original location? You could be wrong and actually be the upload! We will return to this discovery later.

The conjecture claims that the postoperative stream of consciousness associated with the original body is more clearly *identified* with the preoperative stream than the postoperative stream associated with the upload. What traits could grant such an asymmetrical relation between the two postoperative streams and the single preoperative stream? We have just seen that the external traits of the stream of consciousness—the consumption of sensory stimuli—cannot adequately anchor the preoperative stream to one postoperative stream over the other. The only remaining possibility for such asymmetrical anchoring would have to be some feature of the sequence of *inner* thoughts that anchors the preoperative single stream to only one of the postoperative streams, apparently the one associated with the original body if purveyors of the conjecture and its *general description* are to be believed. In the next section, I investigate whether the inner stream could even conceivably support such asymmetrical properties.

Inner stream of consciousness

Perhaps it is the *inner* stream of consciousness that is believed to have such causal power in the *general description*. If so, then it is very poorly worded indeed, since it is often phrased as shown above, with a heavy reliance on your perception of location, which set of eyes you feel like you are located behind, and what body you appear to inhabit.

But even if the *general description* is badly phrased (it's already horrendously circular in its simpler form) we can't very well rely on the *inner* stream of moment-to-moment thoughts to support the conjecture either, because common presentations of the *general description* all but concede that the upload experiences a comparably smooth *inner* stream anyway, no less *subjectively* continuous than the original brain experiences; that concession is built into the thought experiment. We see it in the common retort that "The upload would *feel* like she is the valid continuation of the preoperative person; she is just wrong in this conviction." Such phrasing is an upfront admission that both postoperative people experience streams of consciousness that are equally satisfying of their continuity with the preoperative person and associated identity. So then what is there left for a proponent of the conjecture to cling to in claiming that the preoperative stream has an asymmetrical relation to the two postoperative streams?

Initially there is a single person, experiencing an unbranched stream of thoughts prior to the procedure: thought A to thought B to thought C, etc. At some point, the one person becomes two (or perhaps more) and the conscious stream branches, with the final singular thought C leading to two thoughts D[▲] and D[▼] in two brains, and then to E[▲] and E[▼] and so on. Neither of these inner streams of consciousness is necessarily any less continuous than the other. In fact, the only feature of their circumstances that could possibly render one inner stream less continuous than the other is the integration of discontinuous sensory information resulting from a seeming teleportation by the upload *if and only if* his environment is not identical to the environment of the original body—a sensory discontinuity that is demonstrably unindicative of actual relocation and therefore uninformative of identity status (and likewise, a continuity of apparent environment doesn't prove a *lack* of relocation). All other aspects of the

inner stream will be equally continuous between both postoperative people, and therefore there is no discontinuity that would support the conjecture.

A likely counterargument is that while our visual experience is not indicative of our identity, either our set of atoms (classical body identity), or our closest continuer (see above), or the smooth spatial motion of our bodies (spatio-temporal identity) is the proper indicator we are seeking, as briefly introduced earlier. But the *general description* is an argument based entirely on stream of consciousness identity. None of those other models were relevant when the *general description* was first posed. Retorting with other models of identity when the *general description* starts flailing is just plain goal-post moving frankly. Those other models are explored in other writings, but such considerations cannot reasonably fit into this paper with its focus on the stream of consciousness argument. We are investigating the validity of the stream of consciousness claim because it is the basis of the *general description's* defense.

The discussion has converged on a seemingly backwards pair of conclusions:

- The continuity of a trait with direct impact on our conscious thoughts and experience (our visual *perception* of our location, whether correct or confused) is demonstrably irrelevant to our actual identity.
- The continuity of a trait that has no first-order causal bearing on our experience (our true bodily location, which can only be influential through second-order sensory receptions), and about which we can actually hold false or misleading beliefs based on erroneous sensory and perceptual receptions, should be deemed of critical importance to indicating the truth of our identity.

This logic, in both of its parts, feels perfectly backwards. The reasoning should have led to the exact opposite conclusion, with our visual perceptions and their *direct impact* on our *actual conscious experience* holding tremendous influence over our metaphysical personal identity, while our true location and any continuity or lack thereof, of which we can be dreadfully unaware, and the facts about which we can hold utterly incorrect beliefs, should be assigned no important role to our identity.

But let's explore the stream of consciousness further. It was the basis of the *general description* and we aren't done with it yet. Perhaps there are other reasons to rely on the stream of consciousness to defend the conjecture. I explore such reasons next.

Unconscious nondestructive mind uploading

This next section presents an argument I have offered in previous work [Wiley 2019] but which bears repeating when analyzing the *general description's* defense of the conjecture. We can feel the stream of consciousness argument when we envision a wakeful, nondestructive mind uploading scenario. Curiously, much of the conjecture should fall away if we propose to perform the procedure in an unconscious state, i.e., some sort of stasis. The point isn't necessarily to prescribe how mind uploading should actually be performed. The point is to investigate the philosophical implications for identity in a situation that removes the *general description's* primary evidence. Considerations of unconscious uploading often begin with a recognition that we consider sleep and related states of diminished consciousness to be identity-preserving. Dainton preserves identity across unconscious gaps by focusing on the mere potential for continuity of experience [Dainton 2012], but the *general description* is not about a gap in consciousness; it is about a fully realized stream of consciousness throughout the procedure.

Some readers maintain the original claim—a failure to preserve identity following a mind uploading procedure—even under the unconscious scenario. But if the phrasing of the *general description* of the conjecture is entirely about the stream of conscious experience during mind uploading, then why continue to view the conjecture favorably if that stream is removed from consideration? One response is to

abandon the stream of consciousness argument and switch on other models of identity to defend the conjecture, such as body identity, closest continuer identity, or spatio-temporal identity. But then why offer a stream of consciousness defense in the first place?

Another response to the unconscious scenario is to claim that the stream of consciousness was not adequately broken by the method of stasis employed during the procedure. Rather than focus on a wakeful stream of consciousness, the altered claim now addresses some deeper neurological level where sufficient brain activity is maintained to preserve a continual stream of *subconsciousness*, thereby supporting psychological states and some form of subdued experience, and associated metaphysical identity. The new claim is that the reason sleep or some other stasis preserves identity is that it is a sufficiently neurologically vibrant state that doesn't constitute full *unconsciousness*. Rather, the stream of consciousness persists in some form. This argument fails dramatically however, as shown next.

Levels of diminution of the stream of consciousness

When presented with considerations of unconsciousness, the new argument is that the brain remains busy with neural activity in conventional states of otherwise diminished consciousness. The continued neural activity and its associated psychological effects are then presumed to support the stream of *subconsciousness* that supports personal identity.

While sleep is admittedly a neurological state flourishing with activity, general anesthesia is not quite so unassailable. In this state, the brain descends to a considerably lower level of activity and it is a weaker claim that whatever conscious states are crucial to our identity remain untouched, but admittedly, there is brain activity during anesthesia as well. However, we can go much deeper.

Two real-world scenarios inform us about this proposal of maintained neurology and its metaphysical effects [Wiley 2019]. The first is a medical scenario called medically induced hypothermia, in which a patient is intentionally chilled to a very low temperature to reduce brain damage during cardiac surgery [Hemmen & Lyden 2007, Mizrahi et. al. 1989, Percy et. al. 2009]. The second scenario is called rapid frigid drowning and occurs when a person falls into a nearly-freezing lake or a snow drift and quickly drowns or asphyxiates [Hilmo et. al. 2014]. A few such patients have been found, upwards of an hour later, brought to a hospital, and then slowly warmed back up and revived.

Medically induced hypothermia and rapid frigid drowning involve drops in body temperature to below 14°C [Gilbert et. al. 2000, MSN 2014]. A proponent of the conjecture might object that this does not freeze the brain and therefore does not undo the argument. However, the neurophysiological facts betray such reasoning. A brain does not have to freeze into a block of ice to bring neural activity to a halt. Neurons cease to operate below approximately 21°C [Lomber et. al. 1999]. The sub-14°C brain of the current record-holding patient was consequently devoid of any neural activity. Across her 86 billion neurons, not one action potential fired for a full hour. She did not have *any* form of conscious experience, *subconscious* or otherwise. And yet, we regard such patients as preserved identities despite having temporarily lost all their neurological and psychological support structures. This is a critical point so let's summarize it again. There are real-world medical patients who have violated the assumption that identity preservation requires ongoing neural activity at some subdued level, with its consequently continuous psychological and purportedly metaphysical effects. The fact that we do not label such patients as doppelgangers proves that we have already decided identity does not require a persistent stream of consciousness at any diminished level.

One interpretation of such medical cases is that the brain's primary role in producing psychological and cognitive traits, and in generating consciousness, derives not from action potential propagation, but rather from some entirely different aspect of neurology, one that apparently remains intact at frigid temperatures so as to maintain the physical features required to support metaphysical identity. In this way, the conjecture would remain valid, with the purported stream of consciousness persisting in association

with the original body even in the case of an unconscious nondestructive uploading scenario. This assertion is problematic however, and not only for its abject, unjustified rejection of the bedrock of modern neuroscience, a serious challenge in its own right. The problem is worse than that.

First of all, this would be a clear case of special pleading. The entire motive for appealing to some heretofore unappreciated paradigm of neural and psychological behavior would merely be to justify a predetermined conclusion. A second problem is that by assuming that some other physiological trait of the brain is responsible for maintaining the stream of consciousness even at frigid temperatures, we must then determine what temperature threshold suffices to preserve that other neurophysiological feature. There must be some temperature below which the physical activity of the brain becomes insufficient to operationalize the underpinnings of psychology critical to the stream of consciousness and personal identity (as stated, action potentials are the dominant paradigm and are already vetted above). If the procedure is performed at a temperature below this apparent threshold, we can conclude that the identity of the person prior to the uploading procedure has no *asymmetrical* relation to the various people resulting from the procedure; the stream of consciousness was deemed lost in this case and can no longer support the conjecture. In fact, the proper judgment of an uploading procedure performed below the threshold would be that *both* people are copies and the preoperative person perished.

One might counter, “Okay, good, that’s how we know when someone is preserved or a copy”, but what physical test or scan during or after mind uploading will uncover this temperature threshold that corresponds to metaphysical identity erasure and replacement, if not that of the paradigmatic action potential? Or is there a psychological test, some sort of cognitive interview, that would confirm or deny that identity has been preserved? We already know the answers to these questions. The premise of the thought experiments render such tests impossible. We expect no difference in outward behavior between the various postoperative people. Both people will respond in kind to any psychological evaluation, and therefore no difference in metaphysical status can be revealed by such an interview. These assumptions are the basis of the thought experiments. Likewise, any brain scan, biological or computational in nature, will confirm continuation of the original neural functionality. So again, it is defined away that any test could reveal which person persists the preoperative identity. There is no such thing as a *metaphysical identity detection device*, not even in principle. This makes such an assertion unfalsifiable. It makes the entire notion of branding people with various identities based on external, third party judgments unfalsifiable.

The problem with intuitive reasoning

Even after reading the analysis of the purported stream of consciousness and its implications for identity in a nondestructive uploading scenario, the reader might still feel a strong inclination toward the *general description*. The answer to this conundrum is remarkably straightforward: intuition and surface-level observations in the absence of deeper analysis simply don’t lead us to the truth (or to the most logical conclusion) in many cases. In fact, intuition can lead us to explicitly bad conclusions. On matters concerning the nature of mind, consciousness and identity, we often find ourselves *feeling* certain conclusions with great conviction, but numerous psychological experiments reveal that we don’t possess anywhere near the level of introspective precision that we believe we do. We fall for illusions with reckless abandon. Our susceptibility to logical paradoxes and riddles, our gullibility in the presence of magic tricks, our manipulation in the face to leading evidence, false memory implantation, general misleading by others, psychological features such as change blindness and inattentional blindness, our hard-wired inclination to pareidolia: all of these examples should make us highly suspicious of conclusions concerning matters of psychology that we draw by simply feeling our way through a scenario to see where we end up. Only careful analysis can inform us when our intuition has led us to quickly but poorly reasoned conclusions.

Regarding nondestructive mind uploading, readers are asked to give genuine consideration to the experience as witnessed by the upload, with her own stream of consciousness connecting herself to the preoperative stream, and with her own external stimuli (visual scenery) influencing her internal sequence of thoughts. If psychological states are the salient indicator of metaphysical personal identity, then all other traits (material preservation, aka body identity; various secondary similarities to the prior person, aka closest continuer identity; smoothness of motion through space, aka spatio-temporal identity), are irrelevant *despite* our *intuitive* sense that they ought to play a role. Likewise, even within psychological identity, if we feel again *intuitively* led to lean on the psychological stream of consciousness as a crucial component of identity, we find no apparent asymmetrical relation between the preoperative stream and the various postoperative streams that could impart an asymmetrical fate for *metaphysical personal identity*. The upload's experience of her own stream is just as *psychologically* informative as the original brain's experience and therefore an investigation into each of their respective streams of consciousness offers no insight as to what happens to the preoperative identity during the procedure.

If we abandon the conjecture as invalid, we need to replace it with some other model of identity, one with radically different implications for the outcome of mind uploading, even in nondestructive scenarios, and even in wakeful scenarios. I present one such theory next, called *branching psychological identity*.

Branching psychological identity

What we need is some other model of identity, one not susceptible to the problems encountered by all the other models presented earlier, including of course stream of consciousness identity. We need a model of identity that is capable of representing metaphysical personal identity across the full range of hypothetical scenarios that come up in thought experiments of this variety (a thorough taxonomy of such scenarios is presented in [Wiley 2014]). The best model to date is *branching psychological identity* [Demarest 2016; Wiley 2014; Cerullo 2014]. Others have conceived of the notion of course. Consider that Parfit went so far as to explicitly write a nonbranching criterion into his philosophy on the matter, so the idea has been around for quite a while. More recently, Graziano gives a decent description of branching identity [Graziano 2019]. Nevertheless, branching identity remains challenging for many people to accept, presumably because superficial intuitive ponderings tend to lead in other directions.

The arrow of time and personal identity

Branching identity is best comprehended by reflecting backward in time instead of projecting forward in time. Instead of inquiring what *will happen* to a person as they flow through a mind uploading procedure, it is better to ask how various people retroactively reflect on their past. Instead of asking *who in the future will also be you*, it is better to ask *who from the past was also you*. There are two good reasons for this past-directed framing. First, again illuminating a way in which our intuition leads us astray, is it not the case there is one true future lying ahead of us. Rather, there is no particular future, or perhaps there are infinite futures, not yet disambiguated with a winning future specified. We can see an admission of this fact in the way we phrase hypothetical and speculative questions and thought experiments. We don't ask what *will happen*, as least not if we are honest about the likelihood of outcomes. We ask what *would happen if* events transpired a particular way. Such phrasing openly admits that the future is speculative at best. On the other hand, there is precisely one past. There is no speculative or hypothetical ambiguity regarding the past. We only ask what *might have hypothetically* happened in the context of rolling back the clock to a time *prior* to the point of speculation and then once again considering hypothetical paths forward from that past time's future. When we ask what *actually* happened, it is simply a historical inquiry of past events.

The second reason why our considerations of identity in the context of mind uploading should only be directed backward in time is the nature of psychological identity itself, with its underpinning of memories. Memories only point backward in time. If our identity is indicated by the uniqueness of our memories and the ways in which our memories govern our ongoing cognition, then everything of relevance to—and with any causal implications for—our identity lies in the past. If the *properties* of identity are exclusively past-oriented, then the causal effects on identity should likewise be exclusively past-oriented.

The implication that identity is a one-way relation breaks the rules of a rigorous *mathematical* identity, which imposes transitivity challenges to personal identity that philosophers have raked over for centuries. Parfit solved this problem by disregarding the importance of a mathematical-like identity in favor of his *Relation R*. I prefer to maintain the terminology of personal identity because we are deeply inclined to regard persons in such a manner, but I suggest acknowledging that simple linguistic sloppiness is the problem. *Personal identity* simply isn't the same concept as a mathematical identity and the reuse of the term has caused no end of consternation. I recommend recasting metaphysical identity as this looser concept, a one-way relation between a given pair of people, directed from a later person to an earlier person. A person can *metaphysically personally identify* with a past person if the necessary psychological properties are in place (i.e., contiguous memories upon which to form a speciously present experience of self, aka a stream of consciousness).

If we restrict our considerations to past-oriented inquiries, branching identity falls out of the system for free. We can readily arrive in a situation in which multiple concurrent people past-identify with the same past person. Asking which of those current (present) people the past person *became* is simply a badly formed question because of its future orientation. Despite our intuitive sense that such a question ought to be reasonable, perhaps it just isn't. The only valid question is which person from the past any given *present* person once was. Likewise, asking who you will become is essentially a nonsense question. Instead, ask how future people will feel in regard to you. If any of them feel they experienced or survived uploading as you, then congratulations.

Branching identity and personal survival

The ostensible goal of mind uploading is for the preoperative person to actually *experience* becoming an upload, and in a *destructive* scenario, a related goal is to *survive* mind uploading. Branching identity implies that this desired outcome actually does occur, regardless of whether the original body is destroyed. The original goal was satisfied by the upload's branch in either case. The problem with nondestructive uploading isn't that it fails to yield a stream of consciousness that experiences uploading. *That* problem never existed to begin with, and as such it was never necessary or appropriate to brand that postoperative person with a secondary or copy identity status. The problem is that nondestructive uploading has a second, likely unintended, effect: one branch doesn't satisfy the goal of experiencing uploading. *That's* the problem that requires addressing.

The solution to this problem isn't philosophical or metaphysical and requires no such debate. It is a *practical* problem with a *mechanical* solution, depending on an individual's preferences and goals. If a particular subject's goal is that *none* of the postoperative people have the potentially disappointing past-oriented (i.e. remembered) experience that the procedure failed, then nondestructive uploading is a bad option for that person. People with that concern—and *only* people with that concern—should insist on undergoing destructive uploading, confident of their survival and genuine experience of continuation in the only other postoperative person involved, the upload. Other people might have other goals however, such as ensuring that *at least one* branch carries the preoperative person's conscious experience, and personal identity, onward in uploaded form, while otherwise permitting some other branch to continue a nonuploaded life—with no asymmetrical interpretation of originality or identity status implied. For

anyone who is comfortable with that outcome, nondestructive mind uploading simply isn't problematic to begin with.

One might ask what happens if a subject's *mechanical* desires are not properly addressed (if a malevolent machine operator surreptitiously performs a nondestructive upload against the subject's will, or in the popular thought experiment of a malfunctioning teletransporter that inadvertently leaves the older body conscious by accident). The solution to this quandary isn't to tear down all of metaphysics and attempt to rebuild a new model of identity from scratch in the hopes of achieving a bias-free and paradox-free nonbranching model, which probably can't be accomplished anyway. The solution is to hold a nonparadoxical model in the first place (branching identity) and then simply acknowledge that the initial subject's mechanical preferences were not properly addressed, thereby yielding an undesired *psychological* outcome: a postoperative person with a disappointing perspective on his or her circumstances. At that point, it is a matter for the lawyers, not the philosophers.

A branching description of wakeful, nondestructive mind uploading

The *general description* is a common way of imagining what nondestructive mind uploading would feel like. Although intuitively tempting at first glance, this article has argued that such reasoning is not the best depiction of what it would actually feel like to be uploaded. There are other ways to imagine the conscious experience of undergoing such a procedure, ways that are more aligned with branching identity. Others have given reasonably unbiased descriptions of branching identity as well [Graziano 2019], but let's go over it here.

Branching identity asks us to reframe how we envision *experiencing* a nondestructive uploading procedure, even a wakeful procedure. We must reject our inclination to imagine projecting ourselves forward in time over the course of the procedure because, first of all, references to the future of our identity are a logical error within a memory theory of identity, second because we can't imagine *experiencing or feeling* the future anyway since experience only comingles the specious present with our memories of the past, and third, because it is confounding to attempt to imagine branching forward into multiple descendant streams of conscious experience, much less without imposing unjustified biases on our imaginings, even if the concept is logically reasonable. All we can imagine is our reflection on our past at any given moment in time. Hence, we should imagine the experience of uploading by reflecting on our recent memories at any given moment. At the branch point, we must imagine each of two streams of conscious experience in parallel as they reflect on their respective recent pasts, each with equal validity to the pre-branched stream.

The pre-branch person remembers walking into the mind uploading office and then goes through a sequence of moment by moment memories, up to the branch point: entering the room, lying down on the scanner bed or donning the scanner helmet, and musing as the procedure begins. At the branch point, we must begin considering the perspectives of multiple unfolding streams of experience as they blend recent memories with specious perceptions. Neither of the postoperative people can *feel* the branch event occur of course; they won't know when it happens. The upload will feel his stream of consciousness consistently tethering him along the timeline. His sense of self will never feel at risk. At some moment during the procedure, the upload might experience a visual change in location. This sense of relocation might consist of his visual surroundings seemingly blinking to a new location. Alternatively, he might experience his visual surroundings obscuring and then clarifying in new surroundings. Alternatively, as illustrated above, the upload may not experience a visual relocation at all if the environment is designed that way. If the location does differ in appearance, we could describe this experience as a perception of teleportation, but we don't have to suffer such incredulous terminology. More prosaically, we could describe it as the experience of wearing a virtual reality headset during the procedure and, at some point, suddenly finding ourselves in a completely new visual environment. Clearly, the upload's sense of self,

his identity, and his conviction about who he is, will be no more put at risk by this visual experience than any other depiction of virtual reality. The upload will then continue to experience his stream of consciousness unfolding as the procedure wraps up, he exits the machine, and the procedure is complete, with his ongoing experience now squarely located in the visual vantage point of some new physical location. As I have defended, he is, by no reasonable definition, any sort of “copy” as a result of this stream of conscious experience. He simply is one continuation of the preoperative person.

Of course, we can also consider the experience of the postoperative person associated with the original body, who will not *necessarily* (see below) experience a visual shift over the course of the procedure. But that person’s experience is not particularly interesting because it was already embraced by the *general description* anyway. If the reader would object that the critical difference supporting the conjecture is that the upload experiences a visual shift while the original body does not, we have seen that we can easily *contrive* circumstances to explicitly confound such a biased conclusion. The upload’s new body could be located in an environment that is visually indistinguishable from the brain-scanning location, while the original body, if wearing a virtual reality headset, could suddenly experience a new visual location partway through the procedure (if for no other reason than to conduct psycho-metaphysical experiments of this sort). In this way, we could give the upload a smooth visual experience and the original body a discombobulating sense of teleportation. Without branching identity, the same stream of consciousness argument presented in the *general description* should properly conclude that this scenario inverts the implications of the conjecture, granting the preoperative identity to the upload and branding the original body as the copy! But the better conclusion is to acknowledge that these incidental aspects of our visual sensory experience, and their impact on our smoothly flowing stream of consciousness and our sense of our bodily location, have no relevance to our identity in the first place, specifically because our stream of consciousness is irrelevant to our identity status.

Objections

Various objections were raised by early reviewers of this paper. Instead of greatly expanding the introduction of the paper, which would have tediously prolonged our march toward the main discussion, I pushed an exploration of those objections to the end, here.

One objection was that the newer physical token (person) has false memories and that such a distinction differentiates the two people into original and copy status. The new person remembers standing at the Grand Canyon with light from that scene entering her eyes and exciting opsin molecules to produce visual perception—but the claim is that these memories are false. Her newer legs never stood on the red earth of the Grand Canyon and her newer eyes never absorbed photons from that scenery. But that claim obviously falls into full-blown body identity, which Parfit put to bed long ago. The position proposed by this article is that those memories are not, in fact, false. They are memories of conscious experiences that the *metaphysical person* truly did phenomenologically perceive. It doesn’t matter which set of atoms was involved in the events recalled. Consider the weakness of this objection in the face of material turnover of our bodies. Namely, note that the opsin molecules that received light at the Grand Canyon are not possessed by *either* of the two people following the mind uploading procedure years later. They are not even possessed by the preoperative person moments *before* the procedure; the older body replaced them far in advance. This seems like a relevant fact if we are going to judge the two people’s identities on such a basis. An argument over piecemeal replacement of the body and identity is better left to copious other writings. This paper specifically addressed the stream of consciousness argument, not some other claim, such as material preservation or piecemeal replacement, and suddenly pivoting in this fashion is, yet again, goal-post moving. If one wishes to make a piecemeal identity argument when analyzing mind uploading thought experiments, so be it, but the stream of consciousness argument

nevertheless remains poorly motivated, as shown in this paper. For a thorough analysis of piecemeal replacement in the context of mind uploading, please see [Wiley 2016].

Another early objection was that the characterization of a mitosis is incorrect because of admitted body identity disparities. But I think it is correct after all. The *physical* bodies correspond to labels of original and copy; one physical token is an older pattern-arrangement of atoms than the other token. But the psychological metaphysical properties involved (conscious reflection on one's memories as well as on the specious present), have undergone *metaphysical mitosis* with no notion of original and copy. This falls perfectly in line with Platonic realism, which both Walker and I have considered previously [Walker 2014, Wiley 2014]. Platonic types don't have "copies" from one another because they don't live in a temporal stream whereby one exists prior to another. Types exist all at once and eternally, even if only a subset are instantiated at any given time by Platonic occurrences. One might object that a person doesn't exist until their type is truly instantiated (a more Aristotelian realism, in effect), but the abstraction of an unrealized person is acknowledged in our musings quite comfortably, such as when we contemplate historical counterfactuals, parallel universes, alternate timelines, etc. The people populating such "what-if" scenarios are *existent* but *uninstantiated* Platonic types and we find considerations of such persons to be fairly easy to accommodate.

Consider the following example: How many "copies" of Beethoven's Fifth Symphony exist? A hint to the answer is found in the phrasing of the question, which refers to the symphony in singular form. Read the question again more carefully: *How many "copies" of Beethoven's Fifth Symphony (singular!) exist?* We have all but conceded the answer to the question in its phrasing; it is clearly a singular entity. Digging more deeply, the answer depends on what we are inquiring about. Are we asking how many physical recordings and/or manuscripts of the symphony exist? In that case, thousands exist, for those are *occurrences*, aka *tokens*, of the Beethoven's Fifth Platonic type (the information pattern encoding *that* particular symphony). But perhaps we are asking how many times the *idea* of arranging notes in that particular way exists, i.e., the Platonic type, the arrangement of notes that represents the information pattern of the symphony. That pattern exists precisely once. In fact, Platonic realism does not even allow the concept of multi-existence of a type. That's what a Platonic type *is*. When we make a new manuscript of the symphony by glancing back and forth between a manuscript and a blank page, recreating the ink in a new token, we utterly fail to duplicate the type. There are precisely the same number of conceptual patterns of the symphony before and after the copying process, and that number is always exactly one. We all but admit this in our phrasing of such matters; we refer to the fifth symphony in singular form all the time, such as when we say we are attending a performance (one occurrence) of *the* symphony (a singular type). We are perfectly comfortable with such phrasing.

To restate, we are all fine with the notion that a symphony's type exists once yet can be instantiated by numerous tokens. Branching identity makes the exact same claim regarding the psychological traits of people. The pattern representing a person's mind and life memories up to a given point in time is a Platonic type, and as such, cannot exist twice by the rules of Platonic realism. A nondestructive uploading process initially yields two tokens of a single person type. They will of course diverge at some later time (perhaps almost immediately after the procedure, or perhaps much later if the process is performed under stasis), by the consumption of differing sensory stimuli and corresponding formation of differing memories. Such divergence will then represent two separate types (two minds with slightly different memories) each instantiated by a separate token, but with prior shared histories of diachronic evolution. This is how branching identity works. For a more thorough description of this model of personal identity, see my former work on the matter [Wiley 2014].

I mentioned earlier that Dainton's phenomenological/psychological fission scenario leads me to the exact opposite conclusion that he himself draws from his proposed scenario. In essence, it is just as clear to me that identity follows the psychological stream in Dainton's phenomenological/psychological fission

machine as it is clear to him that identity follows the phenomenological stream. He doesn't seem to even consider the possibility of my disagreement. His phrasing is that it is plainly obvious that all readers will immediately and completely agree with him—and yet I do not. We seem to hold starkly different perspectives on what it would actually *feel* like to consciously experience one's available memories in the specious present *following* his described procedure, toward the goal of determining one's own identity at that later time. While Dainton leans heavily on descriptions of smooth phenomenal experience as the preserver of identity, even in the presence of total psychological annihilation, it seems equally clear to me that at some later time after his described experiment, the final owner of the original identity will be the person whose psychology informs themselves that they are the original and not the invoked new psychology, with absolutely no associations to that past person, as per Dainton's own description. Phenomenal experience that erases all your memories is *not* identity-preserving, it is identity-obliterating. Dainton defends his position by observing that we consider ourselves to be the same people who experience our dreams despite a lack of strong psychological connectedness with our dream persons—but we *remember* our dreams! Fresh phenomenal experience at that later time is what ties our later awakened identity back to the dream identity, namely a cohesive recollection of our dream and even a memory of the discombobulating experience of awakening, a discombobulation which he includes in his own descriptions. Without speciously present conscious reflection on the memory of that experience at some later time, his identity model no longer works. Once again, while Dainton is correct that phenomenal experience is a major player in identity preservation, he completely overlooks that it is our phenomenal experience *of our memories*, i.e., psychology, that is doing the identity-preserving work. If you have the phenomenology of recollecting a different set of memories, that remembering experience indicates a different identity at that later time.

The explanation for how identity can reassociate with the psychology preserver in his VR-4 scenarios is similar to a Sorites paradox. While it might not be clear at each consecutive moment during his described psychology replacement that identity is steadily reassociating with the person who carries the psychological continuity instead of the phenomenal continuity, it can nevertheless be the case at some eventual later time following the completion of the procedure, that the identity now belongs to the psychology preserver, as would be indicated by the later speciously conscious experiences of those two people when they reflect on who they actually are. The one who will remember—and *feel and believe*—that they are the original person will be the one who preserved the psychology and explicitly *not* the one who preserved the moment-to-moment phenomenal experience in Dainton's scenario. It is an empty question to ask precisely which moment in time (i.e., which transient conscious moment in the smooth phenomenological stream) was the one where identity suddenly reassociated to the psychological stream, the same way it is empty to ask which grain of sand, the addition of which to a set of grains, transformed the set into a singular heap (the classic Sorites paradox example). The backward-in-time identity relation presented earlier further clarifies how the Sorites paradox operates in this case: only retrospective remembrances (i.e. the experience of reflecting on one's memories) can possibly be relevant to determining what happened to personal identity at the end of the procedure because memory (and our conscious experience thereof) only points to the past.

Conclusion

I have offered a counterargument to the conjecture that wakeful, nondestructive mind uploading has the effect of preserving the preoperative identity with an association exclusively tied to the original brain and body, to the detriment of the upload's brain and body, and with the upload then receiving a newly spawned identity with no metaphysical attachments to the preoperative person, and thereby labeled a copy. The conjecture was defended via the *general description* of what it would feel like to experience

such an uploading procedure, a description that presumes the stream of consciousness experienced by the original brain and body would attach asymmetrically to the two postoperative people, namely attaching to the original body and not the upload.

The counterargument first investigated why the description characterizes such an experience as seemingly remaining stuck in the original body. It was determined that it is a person's sense of location, both relative to their surroundings, and relative to which pair of eyes they feel they are "behind", based on external stimuli such as vision, that indicates such apparent facts about one's location and bodily association. I then considered several examples by which one's sensory evidence can be misleading to such a degree that I ultimately concluded our sensory experience doesn't yield sufficiently reliable information about our actual location. This analysis led to the rather shocking realization that neither of the two people resulting from a mind uploading procedure can confidently determine whether they are associated with the original body or the upload's body!

This left the only remaining property of a stream of consciousness that might be the property supporting the conjecture to be the *inner* sequence of thoughts running through one's mind, not the stream of external sensory perceptions and processing. But that *inner* stream was never properly in contention to begin with because common presentations of the *general description* concede that the upload will experience a comparable inner stream anyway, with the branching event offering no *inner psychological or metaphysical traits* that would seemingly grant priority to one branched stream over the other. External experience seems to be the only conceivable source of differentiation between the two streams of consciousness, and those were shown to be untrustworthy and uninformative to the point of complete irrelevance on the matter.

I then explored a different way in which the stream of consciousness might be argued to persist in the original body, a purported maintenance of the stream's underlying psychological and yet deeper neurological support structures, argued to preserve a persistent metaphysical stream that remains consistently bound to the body in which it originated. But we saw that the neurological support structures involved can physically dwindle to such a degree (illustrated by real world medical cases, not philosophical thought experiments) that their support of the stream of consciousness—which is itself purportedly supporting the preservation of identity—necessarily ceases, thereby undermining the claim that a persistent stream of consciousness can be the reason to expect the preoperative singular identity to persist asymmetrically between the two resulting postoperative people, namely in favor of the original body.

Finally, after dismissing the *general description* of experiencing wakeful, nondestructive mind uploading, which was used to support the conjecture based on a stream of consciousness identity model, and consequently after dismissing the conjecture itself, I then offered an alternative theory of personal identity, called branching psychological identity, and illustrated how that model would interpret such a scenario through the respective experiences of the various people involved at various points in time throughout the procedure. And we saw that according to such a model, with its strictly backward-in-time identity relation between pairs of considered people, all postoperative people, with their respective streams of consciousness and their bodies, will have equal primacy of metaphysical identity relative to the preoperative identity. To put it succinctly, everyone resulting from a mind uploading procedure has an equally visceral stream of conscious experience connecting them to the preoperative person, and therefore is equally metaphysically *identified* with the preoperative person. This is branching identity.

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