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A Challenge to Psychological and Biological Theories of Personal Identity

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A CHALLENGE TO PSYCHOLOGICAL AND BIOLOGICAL
THEORIES OF PERSONAL IDENTITY

by

Felix A. Benzant

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ABSTRACT

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by

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The University of Wisconsin-Milwaukee, 2022
Under the Supervision of Professor Joshua Spencer

Traditionally, reductive accounts of personal identity within a three-dimensionalist framework face notorious problems. I focus mainly on the problem of graduality. This problem arises out of the apparent tension that exists between the nature of identity as a degreeless relation and standard accounts that seem to admit of degrees. An assessment concerning the nature of these relations is given in order to make the apparent tension explicit. It is then argued that the philosophical implications of such a problem entail a rejection of reductive theories that admit of degrees; paradigmatically, those that analyze personal identity either as psychological continuity or as biological continuity. Finally, it is proposed how this conclusion motivates the thesis that there are no criteria of identity over time.

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I dedicate this to my advisor, Dr. Joshua Spencer, who is one of the most knowledgeable and dedicated professors I have had, and to my former mentor, Dr. Matt Duncan, to whom I owe a great deal of my academic success.

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1. INTRODUCTION

One trend of philosophical orthodoxy in the literature on personal identity maintains that ordinary people persist through time and change. Those who accept this orthodoxy typically base it on some pre-theoretical intuition coupled with a theoretical account of what identity *consists in*. Such accounts are often reductive in that they purportedly provide analyses of personal identity in terms of further non-identity-assuming facts.¹ One way this debate has been framed is in terms of providing *criteria*, i.e., informative metaphysically necessary and sufficient conditions in virtue of which personal identity obtains. If plausible, such criteria would then automatically yield answers to what I'll dub The Standard Question: *what facts does personal identity consist in?*

Paradigm examples of reductive accounts include the psychological and biological theories, which provide competing responses to The Standard Question. Roughly, the psychological theory answers by saying that identity consists in the continuity of certain *psychological* facts. By contrast, the biological theory answers that identity consists in the continuity of *biological* or (when relevant) bodily facts. The central aim of this paper is to examine whether these accounts provide acceptable answers to The Standard Question.

A few words first. Traditionally, reductive accounts of personal identity over time ('personal identity' or 'personal persistence' for short) face notorious problems, amongst which is the familiar *problem of graduality*. The idea is that the identity relation itself seems non-gradual and therefore possibly admits of no degrees,² whereas reductive theories

¹ Note that there are also non-reductive accounts of identity. For contemporary defenders of such views, see e.g., Fiocco (2021), Langford (2017), Lowe (2006), and Merricks (1998).

² See Lewis (1976), Reid (1785/2008, p. 111), Gasser and Stefan (2012, p. 14), Chisholm (1970, p. 171). But see Lewis (1999).

like those that invoke biological and psychological continuity relations possibly admit of degrees.³ Hence the tension. Some claim that four-dimensionalism has decisively settled all these problems.⁴ That may be right. But not all reductive theorists are four-dimensionalists, and so the graduality problem remains in full force with respect to reductive theories within a three-dimensionalist framework. I should note that although the tension between the putative binarity of identity and the seemingly non-binarity of these reductive accounts is well recognized in the literature, very little has been said about the nature of this tension and its corresponding implications. This paper tries to accomplish just that: it highlights the nature of the alleged tension and draws some of the philosophical implications it generates for reductive theories of identity within three-dimensionalism, especially for paradigm views that involve psychological and biological continuity relations.

I try to accomplish this in a series of steps. First, I give an argument to show that the identity relation is essentially a non-gradable one. Second, I argue how psychological and biological continuity are gradable relations—thus giving rise to the foregoing tension. Third, I show how this tension between the identity relation and the psychological and biological continuity relations entails that identity does not consist in either of those relations. This demonstrates, I argue, that psychological and biological theories do not provide acceptable answers to The Standard Question. Fourth, I consider what I take to be the most serious objection to my thesis and argue that it works only at the expense of incurring unpalatable consequences. Finally, I show how my argument motivates anti-criterialism, the thesis that there are no criteria of personal identity over time, by

³ See Gasser and Stefan (2012, p. 8), Parfit (1984, p. 214) and Lewis (1976).

⁴ See, e.g., Gasser and Stefan (2012, p. 13) citing Noonan (1989, pp. 140 – 148).

suggesting how it applies equally to other putative reductive theories of personal identity besides psychological and biological ones.

2. PSYCHOLOGICAL AND BIOLOGICAL CRITERIA OF PERSISTENCE

2.1 The Psychological Criterion

The psychological theory—whose major advocates include Johnston (1987), Shoemaker (1970), Perry (1972), Parfit (1987) and Noonan (2003)—states that people persist in virtue of the cross-temporal continuity of certain psychological features: memories, beliefs, intentions, feelings, desires and so on. Psychological theorists typically refer to these features as psychological *connections*. These are said to obtain in either of two ways: *directly* or *indirectly*.⁵ Before proceeding to examine what psychological continuity is, a few stipulative definitions of its constitutive concepts are in order. The following come in handy:

A psychological connection C obtains between relata R^1 and R^2 =_{df} there is a psychological feature F such that R^1 symmetrically bears F to R^2 either *directly* or *indirectly*.

R^1 is *directly* psychologically connected to R^2 =_{df} (i) there is a psychological connection C such that R^1 symmetrically bears C to R^2 and (ii) it is *not* the case that R^1 symmetrically bears C to R^2 in an *indirect* way.

⁵ See Parfit (1987, p. 206).

R^1 is *indirectly* psychologically connected to R^2 =_{df} (i) there is a psychological connection C such that R^1 symmetrically bears C to R^2 *in virtue of* (ii) there being some intermediate relatum R^* and some intermediate arbitrary psychological connection C^* such that R^1 symmetrically bears C^* to R^* and R^* symmetrically bears C^* to R^2 .

We can now define psychological continuity as the instantiation of an overlapping chain of certain psychological connections across an individual's career. This means that my being connected via a series of psychological connections to five-year-old-me *entails* my being psychologically continuous with five-year-old-me—for an overlapping chain of psychological connections *just is* continuity. Notice that these relations do not need to be *direct* connections. I could be psychologically continuous with five-year-old-me despite there being no psychological features that *directly* connect me to five-year-old-me—e.g., my remembering being a five-year-old. So, if I (at this very moment) am directly connected to twenty-year-old-me, who is directly connected to fifteen-year-old me, who is directly connected to five-year-old-me, and so forth, though I am merely *indirectly* connected to five-year-old-me, I am nonetheless psychologically *continuous* with five-year-old me. So, insofar as psychological connections obtain in the relevant way, psychological continuity obtains.⁶

⁶ Note that although there is a tendency on the part of PC advocates to construe psychological continuity in terms of memory, one might instead emphasize other psychological states—e.g., beliefs, intentions, desires, feelings, and so on—as long as these relations obtain in the relevant way.

Once all this jargon has been sorted out, we have what according to psychological theorists is metaphysically necessary and sufficient for personal persistence: *the obtaining of psychological continuity*. Formally stated:

The Psychological Criterion (PC): Necessarily, a person P_2 at a given time t_2 is identical to P_1 at an earlier time t_1 iff P_2 is *psychologically continuous* with P_1 .

This is the psychological theory in a nutshell of course. Perhaps the devil truly is in the details, but all the intricacies of the psychological view are unnecessary to establish the central thesis of this paper. So, let's move on.

2.2 The Biological Criterion

Another prominent view of personal identity is the biological (or bodily) theory. Leading defenders of this view include Olson (2007), Wiggins (1980), Ayers (1991), Snowdon (1990), van Inwagen (1990), Mackie (1999), and Williams (1956). Evidently, this theory doesn't deny that there is such a thing as psychological continuity, but it claims contra the psychological theory that what is metaphysically necessary and sufficient for personal identity has nothing to do with mental states or any psychological attributes, but rather with our physiology or our biology. It states that personal identity consists in the cross-temporal continuity of some (or all) of the various internal functions and/or physiological characteristics that make up a biological organism. Thus, sameness of person just means sameness of biological organism. But this is not to suggest that the organism in question

cannot incur changes in its atomic structure over time. The claim is that any potential changes must be gradual in such a way that the biological organism continues to exist.⁷ So, according to biological theorists the necessary and sufficient condition for personal identity is sameness of biological organism, that is, *biological continuity*. Formally stated:

The Biological Criterion (BC): Necessarily, a person P_2 at a given time t_2 is identical with P_1 at an earlier time t_1 iff P_2 is *biological continuous* with P_1 .

More explicitly, this thesis asserts that if P_1 is identical with P_2 , then they are biological continuous with each other, and vice versa. Again, there may be physiological or biological changes over time, but these changes do not compromise identity as long as they obtain by gradual replacement. As before, this is the biological theory in a nutshell, but it's all we need for our present purposes.⁸

3. MY PROPOSAL

Our present concern is now whether PC and BC provide plausible answers to The Standard Question. I'm afraid that is not the case. That requires an argument, and here is a sketch of that argument:

⁷ See Swinburne (1984, p. 6), Noonan (2003, pp. 2 – 3), and Gasser and Stefan (2012, p. 2).

⁸ Other related views include the 'brain criterion' which, very roughly, says that what is needed to preserve identity over time is not the gradual replacement (or the cross-temporal continuity) of the material that composes one's body, but that of the material that composes one's *brain*. So, if the relevant material has obtained by gradual replacement, then it is the same brain. Thus, same brain, same person. Another version is called the 'physical criterion,' which more or less combines the brain and the biological (or bodily) criteria. Discussions of this criterion appear in Noonan (2003), Parfit (1984), and Wiggins (1967).

- I. Personal identity does not admit of degrees.
- II. Psychological continuity and biological continuity relations admit of degrees.
- III. If some relation admits of degrees, then personal identity does not consist in such a relation.
- IV. Personal identity does not consist in psychological or biological continuity relations.

In what follows, I evaluate each of the premises of this argument in sequential order. The curious reader might already have questions concerning how ‘consists in’ should be understood in (III). That must wait till *Section 6*. As for now, let’s start by evaluating (I).

4. ARGUING FOR (I): PERSONAL IDENTITY DOES NOT ADMIT OF DEGREES

Identity is the equivalence relation everything bears exclusively to itself. This means that, necessarily, for any x , x is identical to itself and to nothing else. Therefore, x couldn’t possibly fail to be x . That said, a person, like anything else, is necessarily identical to nothing but herself. Hence, she cannot possibly fail to bear that relation to herself and, conversely, nothing other than herself could possibly bear that identity relation to her. So much is uncontroversial.

Furthermore, if x and y are identical, then, necessarily, they share all the same properties—after all, if they are identical, they’re *one and the same* thing. This is the principle known as the Indiscernibility of Identicals:

The Principle of the Indiscernibility of Identicals (PII): Necessarily, at any time t , if x is identical to y , then for any property P , if x has P at t , y has P at t , and vice versa.⁹

Less formally, PII implies that if two alleged individuals, say 'Tim' and 'Kim,' are identical at a given time t , then necessarily all properties that characterize Tim at t characterize Kim at t , and vice versa, given that Tim and Kim are, after all, *one and the same* individual. Thus, same individual at t implies same properties at t . And this is equally uncontroversial.¹⁰

Now consider the following argument. Assume, for *reductio*, that personal identity admits of degrees. This would mean that it is possible that the relevant identity relation holding between, say, person x and person y obtains partially or to a lesser degree or extent than *full* identity. Assuming this is the case, x bears the identity relation to y to a lesser degree than full identity. But necessarily, x is fully identical to x —it is impossible for a thing to fail to be fully itself. Therefore, x has a property that y does not have, namely, the property of *being necessarily fully identical to x* . But we know that, given (PII), necessarily, if x is identical to y then, if x has a certain property P , so does y . So, our present example yields a contradiction. Therefore, entertaining a partial (or anything short of *full*) notion of identity leads to a *reductio*. Here's a more formal statement of the argument:

⁹ Notice that the principle is here time-indexed and so used only as far as synchronic identity is concerned. It is not intended to serve any further purpose.

¹⁰ This principle shouldn't be confused with the Identity of Indiscernibles, which states the converse: if two objects x and y are indiscernible, then they are identical. *This* is a controversial claim.

1. Personal identity admits of degrees.
2. If personal identity admits of degrees, then possibly x bears the identity relation to y to a lesser degree than full identity.
3. Possibly x bears the identity relation to y to a lesser degree than full identity. [1, 2]
4. But, necessarily, x is fully identical to x .
5. Therefore, x has some property that y does not have, namely, *being necessarily fully identical to x* . [3, 4]
6. But, necessarily, for any time t , if x is identical to y , then, by (PII), if x has P at t , y has P at t , and vice versa.
7. Together, (1), (4), (5) and (6) entail a contradiction.
8. Therefore, personal identity does not admit of degrees. [7]

Most of my opponents would accept these premises. After all, they all seem logically provable from the necessity of identity, that is, from the seemingly axiomatic formula 'Necessarily, everything is identical to itself.' And together these premises entail that personal identity does not admit of degrees. So, in order to escape this *reductio* there is only one plausible option: accept the thesis that identity is non-gradable. For the rejection of this thesis leads to an absurd consequence, namely, a contradiction. I suppose no one would like to incur the prohibitive cost of the latter. Hence, there is a compelling reason to accept the former.

5. ARGUING FOR (II): PSYCHOLOGICAL AND BIOLOGICAL CONTINUITY ADMIT OF DEGREES

5.1 Psychological Continuity Admits of Degrees

We shall now see whether psychological continuity is indeed a gradable notion. I argue that it is. Here is an argument for it. Take a particular psychological connection, say, memory. One could argue, by stipulation, that there are at least two dimensions in which memories can be conceived: both in terms of *quantity* and in terms of levels of *vividness* or *detail*.¹¹ I mean that a person's memories are capable of being quantified both in terms of discrete units and in terms of the level of vividness or detail that describe the thing or event they represent. Comparing my own memories of an hour ago with my memories of yesterday morning, I'd say the former are more vivid than the latter. They are richer, clearer, more vibrant, and feel more real—since the actual events they represent have *just happened*. What is more, they appear to be even more abundant in number as well. For instance, I can easily remember lots of things I did recently (even in chronological order). Within the last hour, I remember driving from school, stopping at the pharmacy, and then greeting a friend who walked by, to name a few. I could also tell you what I did before that, and what I did before then, and so on. Furthermore, I could tell you—though with less precision in details and in fewer quantities—what I did last week. But it gets worse as I try to recall what I did about a year ago at a specific time, since my memories are less detailed, considerably fewer, and partly non-sequential. The point is that memories can be more or less vivid and come in lesser or greater quantity—a fact we

¹¹ I am not suggesting that these are the *only* two dimensions along which degrees of memory (or any other psychological connection) could be instantiated. There may as well be others.

usually experience and can easily discern. Hence, memories—in this case a set of direct psychological connections, which in turn entail psychological continuity—can come in degrees. Thus, psychological continuity admits of degrees.

Or consider this other similar, though somewhat more formal, example. Imagine an individual P_1 at t_1 who is psychologically connected via memories to P_2 at a later time t_2 , who likewise is psychologically connected via memories with P_3 at an even later time t_3 . Suppose P_3 has a set of *vivid* memories—e.g., very recent memories—that connects her to P_2 , whereas P_2 has less-vivid memories of about a year ago that connects her to P_1 . Here we could say that P_3 is connected to P_2 to a *greater degree* than P_2 is connected to P_1 . Or, for an instance of quantity, imagine the same exact relata and think of P_3 having two random memories that connects her to P_2 . Now suppose that, in addition to the two memories, P_2 has one more memory (that is, a total of three memories) that connects her to P_1 . In this way, then, P_3 is psychologically continuous with P_2 though now to a *lesser degree* than P_2 is psychologically continuous with P_1 . It is rather clear that though the relata in these two cases are the same, the degrees of their respective relations are different. Consequently, once again, psychological continuity admits of degrees.

I'm not at all stacking the deck by choosing memory as a primary example. You could pick *any* psychological connection—any belief, desire, intention, feeling, and so on—and easily come up with a step-by-step case in which you get less and less (or more and more) continuity between relata, whether it be in terms of details or of quantity. You could easily do so by imagining three different relata, P_1 , P_2 , and P_3 , where P_1 and P_3 occupy opposite ends of a spectrum, and where each relatum marks a stage of an individual's career. At one end of the spectrum, say, P_1 and P_2 maintain a strong psychological

connection, whereas at the other end of the spectrum P_3 holds little to no psychological connection with P_1 . In this case, different degrees of connection obtain within the same spectrum. Replace 'psychological connection' with any specific mental state and you get the same result: *any* psychological relation you pick would admit of degrees.

5.2 Biological Continuity Admits of Degrees

One wouldn't be wrong for thinking that biological continuity is fundamentally different from psychological continuity. The features that naturally exhibit biological continuity are nothing but the phenotypical expressions of the body—or of biological parts—and its various dynamic functions. But how could the same be true about biological continuity, namely, that it also admits of degrees?

Consider another step-by-step case. Suppose that two individuals P_1 at t_1 and P_2 at t_2 are perfectly biological continuous with each other, so much that they even share all the exact same atoms (arranged in exactly the same way). And suppose that P_3 at t_3 is equally biological continuous with P_2 with the only exception that P_3 lacks one single atom that P_2 has. Suppose the same is true with respect to P_4 at t_4 and P_5 at t_5 , whose relations differ only by one atom from the preceding relatum. In this case, there is less and less continuity for every relation holding, which means that different degrees of continuity obtain between each pair of relata. In fact, very few BC advocates would deny that biological continuity obtains even in situations where the subject abruptly loses a finger or a limb. For, presumably, a biological organism can survive the loss of a hand or a foot. And this demonstrates, as in the case of psychological continuity, that a step-by-step case can be equally invoked to show that biological continuity also admits of degrees.

It could be argued, however, that bodily parts by themselves do not necessarily constitute essential features of a biological organism so that, insofar as the amputation of a bodily part occurs in a gradual way so as not to abruptly terminate a living organism, they do not really diminish biological continuity. Rather, what is relevant for biological continuity are facts concerning the internal dynamic processes involved in biological development. So, perhaps it can be argued that there is *something* to the functional aspect of biological organisms that can be construed in ways that admit of no degrees. But this approach is mistaken. Far from suggesting a resolution to the gradation objection, it does nothing but relocate the problem. An analogous step-by-step counterexample is still forthcoming. Think of homeostasis, metabolism, and growth, to name just a few examples of dynamic biological processes. These processes may have fewer and fewer responses to internal or external conditions as time progresses (some of them to the extent of eventually stopping for good). As a result, they self-regulate at different rates or extents. So, an individual is bound to have various changes even in terms of the states of his biological processes over time. And these changes can be characterized in terms of degrees. Imagine, for instance, the following scenario. An individual P_1 has a biological continuer P_2 with all dynamic biological processes kept in good functioning order. P_3 , though biologically continuous with P_2 , has a slower metabolism because of a medical condition—say, Cushing’s syndrome. In turn, P_4 , though biologically continuous with P_3 , has, in addition to Cushing’s syndrome, her two kidneys damaged. And since kidneys help maintain homeostasis, then P_4 ’s organism has, at least, less steady internal conditions than P_3 has. Thus, though these relata very well stand in a relation of biological continuity with each other, they do so at different degrees. So, it seems that a body may

admit of degrees of continuity both in terms of bodily parts—or in its atomic structure—and in terms of its dynamic processes as a biological organism. And this shows that even the various kinds of processes that constitute a biological organism can also admit of degrees. Therefore, once again, biological continuity admits of degrees.

6. ARGUING FOR (III): IF SOME RELATION ADMITS OF DEGREES, THEN PERSONAL IDENTITY DOES NOT *CONSIST IN* SUCH A RELATION

My arguments for (I) and (II) above, once accepted, won't necessarily get us where we want, namely, to the conclusion that personal identity does not consist in psychological or biological continuity. That requires a conditional premise like (III) and a proper analysis of 'consist in' to defend it. I turn to that next.

Informative criteria of personal identity are reductive in nature. Putatively, they provide analyses of personal identity in terms of further facts or relations. These further facts are then said to be what identity *consists in*. PC advocates, as we've seen, take personal identity to be reducible to psychological continuity so that in their mind psychological continuity is what personal identity *consists in*. Likewise for BC advocates, respectively. But what exactly is meant by the locution 'consists in'? Well, part of the answer has already been given. To say that something S consists in something S* is just to say that S is *reducible* to S*. But, in doing so, we appeal to reductionism, and reductionism isn't monolithic. As a result, PC and BC partisans may proceed to disambiguate by way of two Parfitian forms of reductionism. On the one hand, they might appeal to *Identifying* Reductionism and claim that personal identity *just is* psychological or biological continuity.

Or, instead, they might invoke *Constitutive* Reductionism and claim that personal identity is *constituted by* or *grounded in* psychological or biological continuity. Let's consider each in turn.

First, Identifying Reductionism. This form of reductionism can be understood as an identity relation, as it reduces one fact to another in such a strong way that it makes them indistinguishable from each other (Parfit 1995). On this view, PC and BC advocates can perhaps claim that personal identity *just is* psychological or biological continuity, respectively. But, in all likelihood, this approach would not work. In the first place, it is readily dismissible by PII. For if the identity relation is such that it is non-gradable, as I have argued in *Section 4* above, and if relations such as psychological and biological continuity admit of degrees, as argued in *Section 5*, then by PII these relations cannot be the same relation. For they have different properties—one admits of degrees and the other doesn't. For this reason, this kind of reductionism would not vindicate PC or BC, and so it is not the kind of reductionism that advocates of such views would want to invoke. Worse still, this is not the kind of reductionism appealed to by typical reductive theories of identity. So, perhaps there is no need to dwell on it any further.

Perhaps what PC and BC theorists mean by 'consists in' is a *constitutive* form of reductionism. This kind of reductionism differs significantly from the above in that it invokes no identity relation. Instead, it can be characterized as a *grounding* relation that obtains between facts. To follow Gideon Rosen's (2010) characterization of this grounding relation, consider what he calls the *grounding-reduction link*:

(GRL) For any p and q , if p reduces to q , then q grounds p ,

where 'p' and 'q' may stand for some arbitrary facts or relations. PC or BC theorists can then avail themselves of the following grounding principle to state their case:

(GP) For any p and q , if p grounds q , then, necessarily, if p obtains then q obtains.

Now, letting R^* stand for the identity relation and R for any arbitrary relation, we can officially employ what I shall call the 'Grounding Principle of Identity' (GPI). Thus, what it means for personal identity to consist in any arbitrary relation is simply an instance of the following schema:

(GPI) For any relation R and R^* , if R grounds R^* , then, necessarily, for any x and for any y , if x bears R to y then x bears R^* y .

With this principle at hand, it seems like defenders of PC and BC can now fully endorse premise (I), that identity is non-gradable, as well as premise (II), that psychological and biological continuity are gradable, and proceed instead to reject (III). And they can reject (III) on the grounds that (I) and (II) are perfectly consistent with the claim that identity consists in psychological or biological continuity insofar as 'consists in' is understood as the grounding principle expressed by (GPI).

But there is one worry. The trouble is that (GPI) accounts only for the sufficiency of any criterion, not for its necessity. It guarantees that if either psychological or biological continuity obtains, then identity obtains. But it doesn't guarantee that whenever identity

obtains psychological or biological continuity obtains. Hence, PC and BC would not constitute genuine criteria of identity after all. However, defenders of PC and BC might as well bite the bullet and make use of some other principle or logical apparatus that yields the necessary condition. At least, they might claim, a sufficient condition has already been established by (GPI).

But has it? Consider closely what (GPI) entails for PC and BC. It implies that any degree, however negligible, of either psychological or biological continuity is enough to constitute personal identity. That would be absurd. A single continuous psychological state or the mere functioning of a biological organ does not constitute identity. For a psychological state or a biological process, by itself, cannot even constitute a person. What is more, this seems to go against standard views of personal identity. Parfit (1987), for instance, tentatively stipulates what he thinks is the least degree of connectedness (of memories, in his case) expected for any person to persist. He says psychological continuity obtains whenever there is 'the holding of overlapping chains of strong connectedness' (p. 206), and that for any qualification to stand for 'strong' one would expect that there is an overlap of *at least half* of the memories between two directly connected persons (ibid). Likewise, biological theories presuppose in their proposed criteria that the degree of continuity required for personal identity should be, at the very least, sufficient to constitute a biological organism. It seems that endorsing (GPI) spells but trouble for PC and BC on two fronts. Paradigm reductive accounts like PC and BC are then not vindicated by such reductive analyses. And nor can any other relations that admit of degrees, for they too would obviously stumble over the same stone (more on this on *Section 8*). Premise (III), then, stands. And since together (I), (II), and (III) entail that

identity does not consist in psychological or biological continuity, PC and BC do not provide acceptable answers to The Standard Question, and are, consequently, false.

7. A MORE SERIOUS OBJECTION

If one wants to counteract the above conclusion, then there are seemingly only a couple of possible options. One option is to deny (I). But, as we have seen in *Section 4*, this is hardly a viable option, for it commits us to contradictory claims. The other option is to deny (II). But we've seen that step-by-step cases can easily show that all relevant features of psychological or biological continuity can come in degrees. And, again, PC and BC advocates normally *endorse* (II). So, denying (II) does not seem to be a viable option either. But perhaps there is wiggle room to deny (III). After all, PC and BC have long reigned in popularity, so an objection seems imminent. But what would the objection be?

One possible line a critic might take about (III) is to say that I simply misconstrued what (II) entails. Perhaps it is not just *any* degree of psychological or biological continuity that counts as a criterion of personal persistence, but a *sufficient* amount—an amount that is, as we might say, '*just enough*.' An analogy might help. Think of the proverb 'it is the last straw that breaks the camel's back' as an illustration. This is a clear case where there is *just enough* material to trigger a subsequent result—in this case being the fracture of the camel's back. In the same way, perhaps an analogous relation is what personal identity consists in; that is, that there is a specific demarcation (a sharp cutoff) consisting of *just enough* psychological or biological continuity that is necessary and sufficient for personal identity. Psychological and biological continuity surely come in degrees, the critic

may insist, but this *sufficient* degree of continuity, being a sharp cutoff, would not admit of degrees. For whether it obtains is a binary question and hence requires a binary answer. In any given situation, there is either a sufficient degree of continuity or there isn't, in which case you either persist or you don't. This is not a matter of degrees.

With the necessary emendations, a formal revision of PC is in order:

The Psychological Criterion Revised (PCR): Necessarily, P_1 at t_1 is identical to P_2 at t_2 iff there is a *sufficient* degree of psychological continuity obtaining between P_1 and P_2 .

Likewise, a revision to BC would state:

The Biological Criterion Revised (BCR): Necessarily, P_1 at t_1 is identical to P_2 at t_2 iff there is a *sufficient* degree of biological continuity obtaining between P_1 and P_2 .

Notice that these theses are perfectly consistent with their respective degree of continuity being difficult to specify or even impossible to stipulate. After all, what's relevant for these revised criteria to work is that there be a sharp cutoff, not whether we can *know* it—for we are presently concerned with *metaphysical*, not 'epistemic,' criteria. With such revisions at hand, then, it seems that even if PC and BC cannot supply plausible criteria for personal persistence, PCR and BCR can, given that the purported criteria they provide do not admit of degrees. So, psychological and biological continuity advocates can now

legitimately endorse (GPI) but take R to mean, not continuity *simpliciter*, but rather a *sufficient* degree of continuity. Hence, they can reject (III) for failing to capture the notion of a non-gradable continuity relation. In that case, (III) is false and my argument collapses.

8. A RESPONSE

That's rather too quick. What percentage of continuity constitutes this 'sharp cutoff'? Well, again, PCR and BCR do not entail that we can know it. But suppose it is x . I think one is prompted to ask, 'why is it x and not merely $x + 1$ or $x - 1$?' We've already seen Parfit's tentative stipulation that psychological continuity must obtain by at least 50%. But why 50% and not merely 49.9%? There doesn't appear to be any objective standard for deciding. And this shows that any potential stipulation provided by PCR or BCR advocates is bound to be objectionably (metaphysically) arbitrary, or 'merely speculative' (see Gasser and Stephan 2012, p. 9) and, hence, unacceptably *ad hoc*. If that is the case, why should we suppose that such demarcation even exists?

There are several additional problems with PCR and BCR. Take PCR. If P_1 were to persist by the obtaining—in the relevant way—of a *specific*, sufficient degree of psychological continuity, this would imply that even the loss of a single memory, or belief, or intention, and so on, could possibly compromise P_1 's persistence. And the fact that such a small—indeed, miniscule—difference in any mental state can make a difference as to whether a person persists seems to defy our intuitions. For it follows that a certain individual, presumably having at least some mental states or other, could have been like a persisting person had she been able to hold on to that last single memory, or that last

single feeling, or that last single belief she lost. (It even raises the question as to whether, conversely and in a counterfactual situation, she would have persisted had such mental properties been somehow returned to her). The mere conception that in a matter of seconds—or whatever average length of time it takes to lose a mental feature in extreme cases—she ceases to be the *same* individual she just was, for the simple fact that she's lost such a minuscule and seemingly insignificant part of her psychological attributes, is reason enough to raise our suspicion. In addition to its arbitrariness, then, this demarcation results in cases that seem *prima facie* exceptionally counterintuitive. How could a mere single psychological connection become the ultimate decider for whether you persist?

BCR might be even more counterintuitive. Suppose a BCR advocate opts for construing biological continuity in terms of atomic structure. It will follow that if P_1 persists by virtue of the obtaining of *just* the right degree of biological continuity, then there must be a fact of the matter as to the *exact* number of atoms that guarantee P_1 's survival. So, even the lack of single atom could keep P_1 from persisting. And, as with PCR, it is certainly not implausible that a future individual could have been *you* had she been able to retain the last set of atoms she lost—probably as she clipped her nails or brushed her hair off! So, again, BCR implies that a single atom (or a mere set of atoms, for what is worth) could be the ultimate decider for whether you persist. And this is remarkably counterintuitive, to put it mildly.

As argued above, biological continuity is not standardly construed in terms of atomic structure, but rather in terms of processes. But even if BCR is construed in terms of the continuity of the biological processes that typically accompany a biological organism—

though it is not terribly clear what a sufficient degree of continuity would mean in these terms—an analogous case can be constructed to show its parallel vulnerability. As previously stipulated, a mere deregulation of internal conditions is sufficient to lessen the degree of biological continuity. Hence, such deregulation counts as a persistence impediment so that, in virtue of suffering such deregulation, a person who very well could have persisted nevertheless simply failed to persist. In any case, whatever the take on BCR is—either in terms of bodily parts or in terms of metabolic functions—it is open to the same objection: that the suggested demarcation invokes arbitrary, *ad hoc*, and counterintuitive claims.

PCR and BCR are then untenable, as they incur too high prohibitive costs. This poses a dilemma for the psychological and biological theorists. Either they incur the costs resulting from these revisions or else accept that personal identity does not consist in psychological or biological continuity, and hence that psychological and biological views propose false theories of personal identity.¹² The former option is unpalatable. We should accept the latter.

9. WHERE DOES THIS LEAD?

If PC and BC, along with their revised versions, fail, where does this lead us concerning the prospect of postulating criteria of identity? I suggest this leads to the following

¹² Note I have only considered psychological and biological continuity as *simple* theories; that is, as single individual (and mutually exclusive) conditions for personal persistence. Other theories are *complex*, which involve both psychological and biological continuity either as individually necessary and jointly sufficient conditions, or as individually sufficient and jointly necessary conditions. My omission of *complex* theories is obvious. For if each individual relation admits of degrees, they will continue to do so despite the different ways they may be combined.

predicament. One must either postulate a different *kind* of criterion of personal identity such that it doesn't admit of degrees, or else accept anti-criterialism, the thesis that there are no criteria of identity. I suggest the better option is to accept anti-criterialism, and that for the following reasons.

In the first place, it seems that (III) enforces a principle like follows:

(P) For any relation R , if R admits of degrees, then personal identity does not consist in R .

This principle seems to restrict in a very significant way the kind of criteria that can plausibly be posited. In other words, such criteria must significantly differ from the ones considered thus far in order to avoid the problem of graduality. That in itself is a tall order. For given that criteria of personal identity are often construed in terms of some or other psychological or biological features, it is hard to see how they could be construed in ways that admit of no gradation, and so avoid being met with the same accusations—contradiction, on the one hand, or arbitrariness, counter-intuitiveness, and the like, on the other. Consequently, it is reasonable to suggest that any plausible criteria of identity that bear any sort of resemblance—in the relevant way—to psychological or biological continuity would admit of degrees, and hence be false.

Perhaps the constant failure on the part of metaphysicians to provide satisfactory criteria of identity is explained by there being no such things. Once we fully embrace principle (P), along with the conclusion that standard views of personal identity are ruled

out, I think one is much closer to embracing an anti-criterialist position than one might at first supposed.¹³

10. CONCLUSION

In *Section 4*, I argued that identity is, by definition, a non-gradable relation that, otherwise conceived, would lead to a *reductio*. I proceeded by arguing, in *Section 5*, that psychological and biological continuity *are* gradable relations, and showed how this fact entails that personal identity does not consist in psychological or biological continuity. I also considered revised versions of the psychological and biological theories, in *Section 7*, which manage to avoid my initial objections, but—as I have argued—only at the expense of accepting commitment to arbitrary, *ad hoc*, and counterintuitive claims. The plausible alternative option is then to admit that the psychological and biological views are false theories of personal identity.

¹³ For contemporary defenders of anti-criterialism, see Lowe (2014) and Merricks (1998). See also the exchange between Langford (2017) and Duncan (2014, 2020).

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