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## **Animalism with Psychology**

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**Abstract** Here I develop an account of our persistence that accommodates each of the following compelling intuitions: (i) that we are animals, (ii) that we existed prior to the onset of whatever psychological capacities are necessary for personhood, and we can continue to exist with the loss of those and other psychological capacities, (iii) that with suitable psychological continuity, the person goes with the brain/cerebrum in remnant person and brain/cerebrum transplant cases, and (iv) that it is possible for us to survive gradual large-scale replacement of organic with inorganic parts. With the help of a couple of recent “hybrid” animalist accounts I develop an analysis of our persistence that entails (ii)–(iv) while being consistent with (i).

**Keywords** animalism, brain/cerebrum transplants, identity, persistence, persons

Here I develop an account that captures each of four compelling and widely discussed intuitions regarding what we (human persons) are and the changes we can undergo while continuing to exist. What makes this project significant is that each of these intuitions is strong enough that it would be desirable to find an account that allows the truth of all four. Yet, these four initially appear to form an inconsistent set, and they really do seem quite difficult to reconcile. Here are the intuitions.

We are members of the species *Homo sapiens*, which is a species of animal. It would seem to follow that we are animals. The claim here is not merely that each of us is causally or otherwise intimately associated with an animal, as even those who believe that we are immaterial souls can accept. The animalist claim is that each of us *is* an animal in the strict sense of identity. That is,

each of us is numerically identical with an animal.<sup>1</sup>

It is also tempting to believe that no special psychological states or capacities are necessary for our persistence. As Olson (1997a, 1997b) pointed out, it seems that each of us once existed as a fetus, before the onset of the psychological capacities commonly associated with personhood (such as rationality and self-awareness). It is also tempting to think that we can survive the loss of those and various other psychological functions, as arguably happens, for example, when one enters a persistent vegetative state.<sup>2</sup> So in addition to the animalist identity claim, there is the intuition that

we existed prior to the onset of whatever psychological capacities are necessary for personhood, and we can continue to exist with the loss of those and other psychological capacities.

Of course, this belief is not independent of the view that we are animals. It seems that what it takes for an animal to continue to exist is a biological affair and not a matter of psychology.

However, suppose that the brain of some person is removed and placed in the cranium of a different body. Suppose, also, that the brain transplant is a success, with higher-level neural functioning retained in such a way that the animal with the brain after the operation is perfectly psychologically continuous with the animal that had the brain before the operation. It is tempting to think that the person goes with the brain and therefore has switched bodies. Or suppose that rather than being placed in a different body, the excised brain is kept disembodied but with cerebral functions sustained in such a way that psychological capacities definitive of personhood remain.

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<sup>1</sup> Rejecting this identity claim does not require believing that there are immaterial souls. One might endorse the *constitution* approach (e.g., Baker 2000 and 2007) according to which a human person is constituted by but not identical with the spatially coincident animal. Or one might accept the *brainist* view that we are proper parts of animals, specifically, the functioning brain or the part of it responsible for the psychological states that make us persons. (See, for example, McMahan 2002, Parfit 2012, Campbell and McMahan 2016).

<sup>2</sup> Olson (e.g., 1997b, 111–114) expresses the intuition that one would persist in a vegetative state.

There is the intuition that in this case the brain is a person, what Johnston (2007) calls a “remnant” person, and the same person as the earlier embodied individual if psychological continuity is maintained.

We can imagine that instead of removing the entire brain, just the cerebrum is removed and sustained in such a way that all of the psychological capacities definitive of personhood are retained, and with ample psychological continuity. Imagine also that lower brain functions are preserved in the body left behind so that the body remains alive. Despite the fact that the cerebrumless body remains alive, there is the strong intuition in this case, again because of the psychological continuity, that the person goes with the cerebrum.<sup>3</sup> This belief seems at odds with the animalist thesis that we are animals for it appears that the animal goes with the cerebrumless body and not the cerebrum. Also, if our persistence does not require psychological continuity, if some sort of non-psychological (e.g., purely biological) continuity is sufficient, then there would seem to be no reason to deny that the person persists as the living animal left behind. So there would appear to be a conflict between the first two intuitions and the belief that

with the right sort of psychological continuity retained, the person goes with the brain/cerebrum in remnant person and brain/cerebrum transplant cases.

If we go with the brain or cerebrum, then assuming that a brain or a cerebrum is not itself an animal, we can persist without being an animal.<sup>4</sup> Given that animals are organisms and that to be

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<sup>3</sup> This thought-experiment assumes that the psychological activity/capacities definitive of personhood are confined to the cerebrum. If you think they extend to other regions of the brain, then imagine that a larger portion of the brain is removed, so long as the portions that control vital functions are left behind.

<sup>4</sup> One might support the view that the detached whole brain, with activity suitably sustained, counts as an animal or an organism at least. See, for example, van Inwagen (1990, §15) and Olson (1997b, 133). But it seems much less plausible to regard a mere cerebrum as an animal/organism; “a detached cerebrum is not an animal, or a living organism of any other sort” (Olson 1997b, 115). So, as a potential threat to animalism, the transplant case is more effective when imagining that only the cerebrum is transplanted. (Although, see Madden (2016b, fn. 32) who raises doubt for the view that a functioning detached cerebrum is not an animal; also, Madden’s (2016a) account of our persistence discussed here in section 1 might be used to support the idea that an animal can persist as a cerebrum and while remaining an animal.)

an organism one must be at least largely organic, another way for us to persist without being an animal is to have all or most of our organic parts replaced with inorganic bits. If the replacement is done gradually enough with physical continuity intact, it is tempting to believe that we would persist in that inorganic form. So there is also the intuition that

it is possible for us to survive gradual large-scale replacement of organic with inorganic parts,

which seems to conflict with the view that we are identical with animals on the assumption that animals cannot persist without being sufficiently organic.<sup>5</sup>

If we wish to develop an account of our persistence that allows the truth of all four of the intuitions mentioned, then it seems we will need to emphasize both psychological and non-psychological continuity. In section 1, I discuss two “hybrid” accounts that have been offered according to which the animals that we are have persistence conditions that are partly psychological and partly non-psychological.<sup>6</sup> These proposals go a long way toward reconciling the four intuitions, but as shown in section 1 they do not fully succeed. Building on these accounts, I develop a hybrid proposal in sections 2 and 3 that more successfully captures the four intuitions.

## 1. The Hybrid Approach

“*The biological continuity approach (BCA)*,” Langford reports, tells us that in non-branching cases “we persist iff we have a biological continuer” whereas “[*t*]*he psychological*

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<sup>5</sup> Baker (2016) presents the possibility of surviving inorganic replacement as a reason to reject animalism.

<sup>6</sup> The description ‘hybrid’ for this sort of view is not uncommon. Noonan uses the label ‘the Hybrid Approach’ for the view that “we are animals the persistence conditions of which are partly biological and partly psychological” (2003, 205), with examples of support including Wiggins (1996, 246) and McDowell (1997, 237). Noonan (2019) develops a hybrid account, using the label ‘the hybrid view’ for “the complex view that takes psychological continuity as a sometimes sufficient but not a necessary condition for personal persistence” (2019, 196) and mentioning (226, 229) Langford (2014) and Madden (2016a) as advocates. Olson (2008) uses ‘the hybrid proposal’ for the sort of account that describes our persistence in terms of both psychological continuity and biological continuity, while entailing that neither is necessary for our persistence. In this paper I describe as hybrid any account of our persistence that includes psychological and non-psychological conditions.

*continuity approach (PCA)* affirms that, again restricting our attention to non-branching cases, we persist iff we have a psychological continuer” (2014, 356–357). With ‘iff’ BCA and PCA are characterized as views about what is necessary for our persistence and what is sufficient. Langford proposes retaining the sufficiency claims of BCA and PCA and rejecting the necessity claims, with a disjunctive account according to which we fall under the substance concept, *bio-psycho-continuer*, where “[s]omething counts as a bio-psycho-continuer only if (in non-branching cases) it can persist by way of either biological continuity or psychological continuity” (361).<sup>7</sup>

Langford offers reasons for expressing the notion of a bio-psycho-continuer in terms of a necessary condition alone, with ‘only if’ instead of ‘if and only if’ (361). But even with just a necessary condition, the account accommodates three of the four intuitions mentioned earlier. Since the account is disjunctive, it allows that we can persist without psychological continuity, and even in the total absence of psychological capacities, provided there is non-branching biological continuity. So the account allows that each of us once existed as a fetus and as an embryo, and that we can continue in a persistent vegetative state. Being disjunctive, the view also grants that we can survive major or even total inorganic replacement where biological continuity is lost; non-branching psychological continuity suffices. Moreover, Langford’s view that we persist by way of either biological or psychological continuity is compatible with the claim that we are animals, animals that are bio-psycho-continuers.

Given that biological continuity is required to continue to be an animal, on Langford’s view, even though we are animals, we are not animals essentially. While ‘animalism’ is sometimes used for the view that we are animals essentially, it is often used only for the view that we are animals,

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<sup>7</sup> Compare with Sharpe’s (2015) “psychologically-serious animalism,” which is a *conjunctive* approach; “biological and psychological continuity are individually necessary but only jointly sufficient for the persistence of human persons” (65).

with the essential claim regarded as an additional component.<sup>8</sup> With Langford's disjunctive account, one can be an animalist in the latter sense while also accepting that we can survive inorganic replacement and thereby become non-animals. Denying animal essentialism is also a way for animalists to believe that we follow the brain/cerebrum in remnant person and transplant cases even while denying that the cerebrum or the whole brain counts as an animal.

But is Langford's view really compatible with the cerebrum intuition? Suppose the cerebrum is removed with psychological functioning maintained, and suppose the cerebrumless body is destroyed immediately after. The disjunctive view tells us that the person goes with the cerebrum, provided that psychological continuity is sustained. But suppose that the cerebrumless body is not destroyed. Suppose, also, that it remains alive with lower brain functions intact. In this case, we have a biological continuer in addition to a psychological continuer. So where does the person go on Langford's account? Recall his proposal that "[s]omething counts as a bio-psycho-continuer only if (in non-branching cases) it can persist by way of either biological continuity or psychological continuity" (361). By explicitly applying only to non-branching cases, the analysis yields no verdict in the branching case we are imagining.

Is there a way of extending the account to branching cases? The most straightforward way of doing so is with the claim that we persist in branching and non-branching cases by way of either psychological or biological continuity. But, as Langford (2014, 365) mentions, we then get the result that in the scenario imagined the person survives as both the cerebrum and the cerebrumless animal, and so the person ends up in two places at once, which seems implausible. Yet, as Langford points out, non-disjunctivists, including proponents of PCA and BCA, also have to deal with

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<sup>8</sup> Olson (2015b) gives the title 'weak animalism' to the bare claim that we are animals, and he uses the description 'new animalism' for the conjunction of weak animalism and the denial of any further claims animalists often make, e.g., that animals are animals essentially or fundamentally. Olson also uses the labels 'accidental animalism' (2015a) and 'accidentalism' (2016) for the view that we are accidentally and not essentially animals.

branching cases (e.g., where there is more than one psychological continuer or more than one biological continuer) and their options for doing so are also available to the disjunctivist (365). One of the options Langford mentions (besides holding that the person ends up in two places at once) is to accept the view that in the case described there were two persons within one body, two spatially coincident persons, before the operation, and one of them goes with the cerebrum while the other goes with the cerebrumless body.<sup>9</sup> However, there is the strong intuition that in the case imagined the person goes with the cerebrum and not the living body left behind. So I think a more plausible option for the disjunctivist is to add Nozick's (1981) notion of a "closest continuer" to Langford's account, and then develop the account in a way that ensures that the cerebrum is the closest continuer in the branching case we are imagining. I will present what I consider the best way to do that in sections 2 and 3. The solution proposed is not simply a matter of claiming that in branching cases, psychological continuity always wins out over physical/biological continuity, and the solution offered is not a disjunctive one. But before we turn to my proposal, let's get a clearer idea of how to proceed with a brief discussion of Madden's (2016a) hybrid account.

With the belief that we are fundamentally biological organisms of the kind *human animal*, Madden claims that "[o]ne of us persists if and only if a sufficient number of capacities for human-animal-characteristic activity are continuously preserved (along a dominant path)" (2016a, 6).<sup>10</sup> Madden provides a list of some of the activities characteristic of the kind *human animal*. The list includes biological activity of various sorts (such as digesting, ageing, and fighting infection) as well as activities characteristic of non-biological material aggregates (e.g., resisting penetration

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<sup>9</sup> See, for example, Lewis (1976), Robinson (1985), and Noonan (2019, 141–144) for defenses of the view that with fission there is more than one individual there all along.

<sup>10</sup> Madden is following Wiggins' development of the broadly Aristotelian view that, as Madden puts it, "[a] macroscopic continuant is, most fundamentally, a locus of law-like activity characteristic of its general kind" (2016a, 4). Langford (2014) also appeals to Wiggins' view of persistence in terms of continuation of an object's principle of activity.

and blocking light). In the list of activities characteristic of the human animal kind, Madden also mentions various psychological functions, including planning, remembering, visually attending, and problem-solving. So, on his account, “psychological capacities are relevant to our persistence” (6).

Requiring only that a *sufficient* number of capacities are preserved allows that we can exist without psychological capacities, either before their presence or after their loss — provided that enough of the biological or purely physical abilities are preserved (continuously along a dominant path). Also, on Madden’s view, we can persist even with the loss of biological capacities, assuming a sufficient number of our purely physical or psychological ones are retained. So it seems that on his account, we can survive replacement of organic with inorganic parts.

What about persisting as a remnant person? The account allows for that possibility by including in the list of activities characteristic of the human animal kind various psychological functions. With the inclusion of psychological activity, the person goes with the excised brain/cerebrum on Madden’s view, provided that enough psychological activity or the capacity for it is continuously preserved (along a dominant path).

But suppose that a living body were left behind. Where would the person go in that case? If the cerebrum were removed, with all person-making psychological features sustained, then certain capacities that Madden considers characteristic of the human animal kind would follow the cerebrum. Of course, other capacities would go with the remainder of the body, and with life sustained via lower brain functions, it seems that many more capacities would follow the remainder of the body than would follow the cerebrum.

Wishing to maintain that the person goes with the suitably functioning cerebrum even with a living body left behind, Madden points out that the “single term ‘thinking’ grossly underestimates



the number and diversity of human-organism-characteristic capacities preserved” by the cerebrum, including among others: the capacity for “colour discrimination, grammatical string detection, social hierarchy navigation, duration sense at different temporal scales, vertical–horizontal line discrimination, face recognition, place recognition, practical know-how, auditory phoneme individuation, predictive naïve physics, story-telling, [and] episodic memory” (2016a, 7). If the number and diversity of psychological capacities such as these make the path of the cerebrum the dominant path in the brain removal case being imagined, then we can say with Madden’s account of our persistence what many of us are inclined to say — that the person goes with the cerebrum and not the cerebrumless body even if the latter remains alive with the capacity to control vital functions.

Granted, the number and diversity of psychological capacities preserved by the cerebrum is much greater than what the single term ‘thinking’ implies. However, as Kotak (2018) mentions, it is doubtful that those functions controlled by the cerebrum outweigh the host of other functions (biological, chemical, and physical) that remain in the cerebrumless individual. Those other functions on Madden’s list of activities characteristic of the human animal kind include biological activities found in most kinds of organism (e.g., growing, excreting, aging, digesting, sweating, and dying); they also include “activities characteristic of simple material concretions,” such as resisting penetration and blocking light (2016a, 6). It is unclear at best that the path of psychological continuity would be the more dominant one if the body left behind had the great wealth of non-psychological capacities and activity that the life of a human organism requires. Moreover, as Hershenov points out, “[t]here won’t clearly be psychological dominance if we imagine the transplant of a very unsophisticated human mind due to damage or developmental immaturity”; yet, in such a case “most readers would assume that the subject of experience has

moved with the minimally sentient human mind” (2020, 91). So it is doubtful that Madden’s account adequately captures the intuition that we go with the psychologically continuous cerebrum in cases where the cerebrumless body remains alive.

I take it that it’s a merit of Madden’s account, and Langford’s, that psychological continuity is not considered necessary for our persistence, for this allows that we predate and can outlast psychological capacities. It is also a merit of their proposals that they don’t regard biological continuity as necessary for our persistence, which is consistent with our surviving inorganic replacement. There is the additional virtue that their accounts, while not requiring biological continuity, allow that each of us is identical with an animal. The proposal developed in the next two sections maintains these merits, while more effectively capturing the intuition that we go with the brain/cerebrum in remnant person and transplant cases.

## **2. Towards a New Hybrid Account**

There might have been, and perhaps there are, persons who are immaterial substances (gods, angels, or Cartesian egos perhaps) or have immaterial substances as proper parts. What I am calling ‘physically realized’ persons, by contrast, are those who are confined to physical space and at some level of composition are wholly comprised of physical parts.<sup>11</sup> Working on the assumption that we are physically realized, the question arises: What does it take for any physically realized person, human or otherwise, to persist?

Let’s use ‘P’ to indicate whatever psychological activity and capacities are definitive of personhood (such as self-awareness and rationality) and let ‘P-continuity’ designate whatever continuity of P-activity/capacities grounds the persistence of persons. Also, ‘x at t’ is used here to

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<sup>11</sup> I talk of *physically realized* persons rather than physical persons to avoid the assumption that all of the properties of a person are reducible to physical properties. Talk of physical realization allows the truth of a non-reductive physicalist account of our mental and, say, biological properties.

abbreviate ‘x as x is at t’, and ‘y at t\*’ is used to abbreviate ‘y as y is at t\*’, without presupposing that ‘x at t’ and ‘y at t\*’ name temporal parts.<sup>12</sup> As a first approximation, then, the proposal is:

H: Necessarily, if x is a physically realized person at time t, then for any y at time t\*, x = y if and only if

(i) y at t\* is physically continuous with x at t,

and (ii) y satisfies the following requirement:

its P-continuity at t\* with x at t is not exceeded by the P-continuity with x at t of anything else at t\* that is physically continuous with x at t.

H applies to all physically realized persons, including any non-human physically realized persons there might be. According to H, we and any other physically realized persons persist as *the physical continuer that preserves an unsurpassed degree of continuity of psychological activity/capacities definitive of personhood*. I use ‘H’ as short for ‘Hybrid Account,’ indicating that like Langford’s account and Madden’s, H emphasizes both psychological and non-psychological continuity. Also, H is only a first approximation. Some modifications are needed, as might already be apparent, and these will be added in section 3. For the remainder of this section let’s consider how the core analysis, H, accommodates the various intuitions regarding our persistence.

H does not specify which psychological activity or capacities count as definitive of being a person, and H is also neutral on the type of psychological continuity that matters to our persistence (overlapping chains of direct memory links, suitable causal connections, sharing a first-person perspective, or similarity of personality traits). H is neutral as well on which factors make it the case that one instance of P-continuity outweighs another. Thus, as intended, the analysis is

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<sup>12</sup> The discussion here is meant to be neutral on whether endurantism is true. This formulation and any of the points expressed in this paper in endurantist terminology can be rephrased in 4-dimensionalist terms.

compatible with a wide range of differing opinions on what type of psychological continuity, and how much and what degree, is a factor in our persistence.

H also leaves unspecified how best to construe physical continuity. One might choose to think of it in terms of spatio-temporal continuity of a sufficient portion of matter, with different possible views on how much is sufficient (e.g., more than half or perhaps some more sizable majority). Or one might wish to understand physical continuity in terms of some type and degree of causal continuity of physical processes, either in addition to or instead of the emphasis on spatio-temporal continuity.<sup>13</sup> So H may be adopted by those with differing views on what counts as physical continuity. However, while H leaves much latitude on how to understand physical continuity, not just anything goes. The analysis is not meant to require any sort of biological continuity — so as to allow that persons like us who are biological might survive large-scale replacement of organic with inorganic parts. The physical continuity mentioned in H is also to be understood, as one would expect, in such a way that one is physically continuous with the earlier fetus and the cognitively deprived individual one might become; and it is to be understood in such a way that the excised cerebrum is physically continuous with the person from which it was removed and the person receiving the implant. This allows that the person existed before and can survive the loss of P-capacities, and it allows that the person goes with the brain/cerebrum in remnant person and transplant cases. And condition (ii) helps ensure these results.

Suppose some person x is awaiting cerebrum-removal. The cerebrum is removed with P-activity/capacities sustained so that we end up with a remnant person, y, who is P-continuous with x. Since y is small relative to the cerebrumless body left behind, y is not the item at the time that is most physically continuous with x. The cerebrumless body is more physically continuous with

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<sup>13</sup> For better insight on different ways to understand physical continuity, see Sauchelli's description of different ways to view the persistence conditions of bodies of matter (2017, 212–213).

x than y is. Still, y is physically continuous with x to some degree, and on the assumption that P-capacities are housed in the cerebrum,<sup>14</sup> y is a physically continuous item with unsurpassed P-continuity — unsurpassed by the P-continuity with x of anything else at the time that is physically continuous with x. So with the emphasis in (ii) on being a physical continuer with unsurpassed P-continuity, H gives the intuitively correct result that x goes with the cerebrum and not the rest of the body even if the cerebrumless portion remains alive. (For ease of exposition here and in some of what follows I abbreviate. When I say that y is continuous with x, I mean that *y as y is at the one time* is continuous with *x as x is at the other time*. For example, saying above that y is physically continuous and P-continuous with x is shorthand for saying that y as y is in the remnant person state is physically continuous and P-continuous with x as x is/was before surgery.)

To satisfy the requirement specified in condition (ii) of H, y's P-continuity with x cannot be surpassed, i.e., cannot be surpassed by the P-continuity with x of anything else at the time that is physically continuous with x. However, this does not require that y actually is P-continuous with x. Suppose that person x begins to lose all P-capacities, and suppose that what is left is a living body, y, without any P-capacities. Since y has no P-capacities, y is not P-continuous with x. But, we may suppose, nothing else at the time that is physically continuous with x has any more P-capacities than y has. In this sense, y's P-continuity with x is unsurpassed. So H gives the result that the person persists in this case (though presumably not as a person) despite the loss of P-capacities.

Also consider some adult person, x, and the former fetus, y, prior to the gain of P-capacities. While x and y are physically continuous, there is no P-continuity between x and y. However,

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<sup>14</sup> As mentioned in footnote 3, if you think the psychological activity/capacities definitive of personhood extend to other regions of the brain, then imagine that a larger portion of the brain is removed. Also, extended mind considerations are set aside here solely for the sake of simplicity.

nothing at the time that is physically continuous with  $x$  has any more P-capacity than  $y$  has. So  $y$ 's P-continuity with  $x$ , albeit lacking, is unsurpassed (by the P-continuity with  $x$  of anything else at the time that is physically continuous with  $x$ ). Thus, H gives the result that  $x$  and  $y$  are the same individual in this case, thereby capturing the intuition that we existed before any P-capacities were acquired.

H also allows that we existed prior to and can survive the loss of *all* psychological capacities. Suppose that  $y$  is physically continuous with  $x$ , but  $y$  has no psychological capacities. Then  $y$  is not psychologically continuous with  $x$ , and since P-continuity is a type of psychological continuity,  $y$  is not P-continuous with  $x$ . But suppose that nothing else at the time that is physically continuous with  $x$  has any psychological capacities. Then nothing at the time that is physically continuous with  $x$  has any more P-continuity with  $x$  than  $y$  has. Assuming that  $x$  is a physically realized person,  $x = y$ , according to H.

H does not entail that we are animals. One might accept the analysis and argue that we are constituted by animals and not identical with them. One might also accept H and believe that the brain is the nonderivative locus of mentality, and one might conclude that the person is the brain or some part of it even when it is inside an animal. But, clearly, one can consistently accept H while believing that we are animals, for one can consistently believe that the persistence conditions of those human animals who are persons (and any other animals that might qualify as persons) are as described by conditions (i) and (ii). So suppose that we conjoin H with the belief that we are identical with animals. The result is an animalist account that has as a strong point in its favor the fact that it honors each of the other intuitions — that we existed prior to and can survive the loss of person-making and other psychological capacities, that we go with the brain/cerebrum in remnant person and transplant scenarios, and that we can survive inorganic replacement.

However, there are some concerns with H that show that a few additions are required.

### 3. Modifying H

Imagine that a person, x, splits in half, leaving two individuals, y and z, both of whom are physically continuous with x (as x was before the division), and equally so. Also suppose that y and z are equally P-continuous with x, and nothing else at the time that is physically continuous with x is more P-continuous with x than y and z are. According to H, both y and z are identical with x, which cannot be given that y is not identical with z. Unless we wish to maintain that there were two persons present all along, some addition to H is needed.

We might add as a third condition that the person persists only as *the most dominant* physical continuer with unsurpassed P-continuity. With this addition we get the desired result that in the case imagined where there is no dominant physical continuer, the pre-fission person does not survive the division. But imagine the case is slightly different. Person x divides, leaving y and z, and y at the time contains just a little more of x's matter before the division than z does — suppose only two ounces more. Also suppose, as before, that y and z are equally P-continuous with x, each with unsurpassed P-continuity. Many would be reluctant to accept that a difference in just a couple of ounces could make a difference in where the person goes.<sup>15</sup> So it seems that the third condition added to H's (i) and (ii) should require not just greater physical continuity, but *significantly* greater physical continuity — the most dominant physical continuer (with unsurpassed P-continuity) and significantly so. For the purpose of the analysis, let's leave it open what significantly greater physical continuity amounts to, thereby allowing for different views on how much additional

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<sup>15</sup> Thanks to an anonymous referee for *Dialectica* for bringing this problem case to my attention. Thanks also to anonymous referees for the journal for each of the other cases discussed in this section.

physical continuity is significant enough to make a difference in whether the person survives in cases of physical branching.

In section 2, the physical continuity mentioned in H was left unspecified so that H may be accepted by those with differing views on how best to construe physical continuity. Yet, what counts as physical continuity by some standards might not be the sort of physical continuity that is necessary for our persistence. So in modifying H we might wish to require *suitable* physical continuity. For example, we probably would want to place limits on how far along we persist in the process of death and decomposition. One might be inclined to accept the *Termination Thesis*, the view that we cease to exist when we die.<sup>16</sup> The proponent of this thesis might believe that the type of physical continuity required for us to persist involves continuity of life. Although, if we demand continuity of biological life, then it seems we cannot retain the idea that we might survive massive inorganic replacement (given that something is a biological entity only to the extent that it is largely organic). Rather than requiring continuity of biological life, those attracted to the Termination Thesis might instead require continuity of a certain sort of *internal complexity*, where the requisite internal complexity might be explained in terms of the manner and degree to which one's internal processes are causally interdependent. So long as it is a type of internal complexity that corpses lack, then the revised analysis would be acceptable to proponents of the Termination Thesis. And as long as it is a type of internal complexity had by the typical human fetus, a human in a persistent vegetative state, a remnant person, and a human survivor of inorganic replacement, the analysis continues to honor the intuition that we persist in those cases.

Even those who reject the Termination Thesis, believing that we survive death as corpses, would probably maintain that our persistence requires continuity of some degree or type of internal

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<sup>16</sup> See Feldman's (1992) classic discussion and rejection of the Termination Thesis.



complexity to preclude our surviving to the very end of the decomposition process.<sup>17</sup> It is not clear how the details of the internal complexity are best specified, although it is clear that there are different types and degrees of internal complexity had by a freshly dead human corpse but lacked by, say, a human skeleton.

Suppose, then, that we preface the two occurrences of ‘physically continuous’ in H with the word ‘suitably’, where ‘suitably’ serves as a placeholder for whatever restrictions one might wish to place on the physical continuity mentioned in the analysis. Also suppose we add a third condition that requires being the most dominant suitable physical continuer (with unsurpassed P-continuity) and significantly so.

H': Necessarily, if x is a physically realized person at time t, then for any y at time t\*, x = y if and only if

(i) y at t\* is suitably physically continuous with x at t,

(ii) y satisfies the following requirement:

its P-continuity at t\* with x at t is not exceeded by the P-continuity with x at t of anything else at t\* that is suitably physically continuous with x at t,

and (iii) y exhibits significantly greater suitable physical continuity with x at t than does anything else at t\* that satisfies the requirement of unsurpassed P-continuity specified in (ii).<sup>18</sup>

Provided that suitable physical continuity is not understood in a way that prevents any one of us from being suitably physically continuous with a fetus, someone in a vegetative state, a cerebrum, or someone with an inorganic composition, then like H, H' honors the intuition that we

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<sup>17</sup> Mackie, who rejects the Termination Thesis, proposes that “[a]n organism persists for as long as it retains enough of its parts, in a sufficiently similar state of organisation” (1999, 238).

<sup>18</sup> Like H, H' is expressed in endurantist terminology (especially with talk of x being identical with y), but the formulation can be rephrased in 4-dimensionalist terms and with reference to temporal parts made explicit (with ‘x-at-t’ and ‘y-at-t\*’) if one wishes.

pre-dated the acquisition of and can survive the loss of P-capacities, that the person goes with the P-continuous brain/cerebrum in remnant person and transplant cases, and that we can survive inorganic replacement. Also, nothing about the additions to H rules out our being identical with animals. One can consistently believe that we are animals whose persistence conditions are those described by (i)–(iii).

To better understand the *suitable* physical continuity requirement in H', let's see how the notion of suitable physical continuity might be used to handle some other potential problem cases. Suppose that person x starts to experience major psychological changes so that the person y at a later time who is highly physically continuous with x before the changes is only modestly P-continuous with x. Also imagine that just before the disruption of P-continuity, an exact psychological duplicate of x is created out of entirely new matter except for a few of x's atoms. Given the few atoms retained, the psychological duplicate, z, is physically continuous with x to a minimal degree. Also, if P-continuity does not require *causal* continuity of psychological features, then given the perfect psychological duplication z is more P-continuous with x than y is, in which case, H' seems to give the result that x survives as z. Some might consider it implausible to believe that x and z are the same person in this case especially given that y is highly physically continuous with x and P-continuous with x to some degree. If we wish to avoid the result that x and z are the same person, one obvious way to do so is to insist that more than just a relatively minimal amount of physical continuity is required for a person to persist (where the sum of only a few atoms is minimal relative to the whole body while a brain or cerebrum is not). By including in the idea of suitable physical continuity that there is more than just a relatively minimal amount of physical continuity, we avoid the result in the case described that x and z are the same person.

Suppose, instead, that without any major psychological changes, the cerebrum is taken from person x and successfully transplanted. Also imagine that upon removal, the cerebrum is immediately replaced with a duplicate cerebrum, quickly enough that there is no disruption of psychological continuity. At the end of the procedure, there are two persons: person y who is the recipient of the original cerebrum and person z with the original body and duplicate cerebrum. If P-continuity does not require causal continuity, then we may suppose that in this case, y and z are equally P-continuous with x, and both with unsurpassed P-continuity. Also, because z has all of the original body except for the cerebrum, z is highly physically continuous with x and significantly more so than y is. H' entails that the original person x survives as z (the person with the original body and duplicate cerebrum) and not as y (the recipient of the original cerebrum).

It's not clear to me what to think about this result. But those who find the result counterintuitive can avoid it while still accepting H'. One option is to construe suitable physical continuity as requiring *physical continuity of the locus of P-features* (person-making psychological features). Assuming that the cerebrum is the locus of P-features, if suitable physical continuity demands physical continuity of the locus of P-features, then z (the person with the duplicate cerebrum) is not suitably physically continuous with the original person x. So by construing the suitable physical continuity mentioned in H' as requiring physical continuity of the locus of P-features, we can endorse H' without holding that z is the same person as x. H' would instead give the result that x follows the original cerebrum and survives as y. There is another way to secure this result. We might construe P-continuity as requiring causal continuity of P-features. If P-continuity requires causal continuity of P-features, then H' does not entail that x survives as z. The result, instead, is that x survives as person y with the original cerebrum. (Of course, the appeal to

causal continuity might also be used to avoid the result in the previous case that the person survives as the psychological duplicate.)

Here's another concern. H' gives the result that if P-continuity is sustained, then the person persists as the cerebrum when it is removed. Now suppose the cerebrum is successfully placed into another body. After surgery, there is the individual, y, that received the cerebrum, and there is the cerebrum itself, z. Assuming that P-capacities are confined to the cerebrum, it seems that y and z are equally P-continuous with the pre-implant cerebrum, the remnant person, x. Many would be inclined to think that in this case after successful implantation x persists as the entire individual, y, and not just the cerebrum, z, contained within. But given H', whether x persists as y or as z depends on which is more physically continuous with x. It would seem that on most plausible construals of physical continuity, y is not more physically continuous with x than z is. In fact, it is arguable that z is more physically continuous with x given that there is so much of y that is not physically continuous with x. So there is the worry that, with H', x remains cerebrum-sized even after implantation — or perhaps worse, x does not persist at all assuming neither y nor z is significantly more physically continuous with x than the other is.

If we wish to secure the result that the person persists as the whole animal after implantation and not just the cerebrum, we might include in the idea of suitable physical continuity that a suitable physical continuer is a *maximal* physical continuer, where a maximal physical continuer is one that does not have any suitable physical continuers as proper parts. Given that the whole animal after implantation is a suitable physical continuer of remnant person x, the maximality constraint entails that the cerebrum after implantation is not a suitable physical continuer of x. So if the whole animal is a suitable physical continuer and if being a suitable physical continuer entails being a maximal physical continuer, then with H' we get the desired result that the person coincides

with the whole animal after implantation (and is the whole animal given animalism).<sup>19</sup> Although, perhaps we can secure this result without adding the maximality constraint. One might have some reason, independently of maximality considerations, to believe that when the cerebrum is housed in an animal, the bearer of psychological properties is the animal itself, and not the cerebrum. For example, if we had reason to believe that the person is the genuine bearer of psychological features and that the person is the animal when the cerebrum is contained within, then we would have some reason to believe that the animal, and not the cerebrum, is the bearer of psychological features. If the implanted cerebrum,  $z$ , is not the bearer of psychological features, then it is not P-continuous with the cerebrum,  $x$ , before implantation. In that case,  $z$ 's P-continuity with  $x$  would be surpassed by the animal's P-continuity with  $x$ . So then we would get the result, even without a maximality constraint, that the person does not remain cerebrum-sized after implantation.<sup>20</sup>

In further clarification and defense of  $H'$ , let us consider some of Olson's objections to combining animalism with persistence conditions that are partly psychological.

#### 4. Some of Olson's Objections

Olson mentions a way to formulate a hybrid account of the persistence of human organisms and shows that it has implausible consequences. One might wonder whether an animalist who endorses  $H'$  faces the same sort of objection. Olson considers the following proposal: "if  $x$  is a human organism at time  $t$  and  $y$  exists at time  $t^*$ ,  $x = y$  iff  $x$  is (uniquely) psychologically continuous, at  $t$ , with  $y$  as it is at  $t^*$  or no being is psychologically continuous at  $t^*$  with  $x$  as it is

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<sup>19</sup> Adding this maximality constraint to the notion of suitable physical continuity in  $H'$  does not commit one to the view that personhood is maximal. It places no restrictions on whether persons can have persons as proper parts. Although, it does entail that if  $y$  is a suitable physical continuer of person  $x$ , then  $x$  does not persist as any proper part of  $y$ .

<sup>20</sup> Thanks, again, to anonymous referees for *Dialectica* for bringing the problems cases discussed in this section to my attention.

at  $t$  and  $y$  has the appropriate sort of brute-physical continuity, at  $t^*$ , with  $x$  as it is at  $t$ ” (2015b, fn. 16). This is obviously a disjunctive account according to which human organisms, and we (given the animalist belief that we are human organisms), persist with either psychological continuity or physical continuity in the absence of psychological continuity. The problem with this analysis is that it has the implausible result that “if your cerebrum were removed from your head and then destroyed, while the brainless animal left behind survived in a vegetative state, you would first go with the cerebrum and then discontinuously “jump” to the brainless organism, even though there would be neither psychological nor biological continuity across the jump” (fn. 16).

Consider any disjunctive account on which we persist with either psychological or physical (including biological) continuity. To capture the cerebrum intuition, we might be inclined to add that psychological continuity always wins out when both types of continuity are present, as the disjunctive account Olson considers entails. But then we get the implausible result that Olson describes: the person follows the path of psychological continuity and goes with the cerebrum, and when the cerebrum is destroyed and there is only physical/biological continuity, the person goes with the cerebrumless body. However, like H, H' requires physical continuity (which needn't be biological continuity), and therefore precludes a person discontinuously jumping from one region to another. Since, according to H', the person goes with the cerebrum in its disembodied state and since the naked cerebrum is not physically continuous with the cerebrumless individual, H' entails that the person does not persist as the latter when the cerebrum is destroyed. On H' (and H), the person ceases to exist when the cerebrum is destroyed.

Of course, by requiring physical continuity, H' does not capture all of what some believe about our persistence. There is the not uncommon belief that psychological continuity of the right sort is sufficient for our persistence, for example, that if a person's body were completely destroyed

and replaced with a psychological duplicate, then the person would persist as the duplicate despite the absence of physical continuity. Yet, it is not at all clear that mere psychological continuity, even continuity of person-making psychological features, is sufficient for the persistence of a physically realized person, and requiring physical continuity seems the most effective way to reconcile animalism with the cerebrum intuition while also avoiding the implausible result that Olson mentions of an animal discontinuously jumping from one region to another.

Now let's turn to some objections Olson raises that target any attempt to combine animalism with psychological persistence conditions to preserve the cerebrum intuition.<sup>21</sup> The objections to "new animalism," as Olson (e.g., 2015b) calls it, include the following. (a) Suppose the cerebrum is removed, but biological life continues in the cerebrumless animal left behind. It would seem that the cerebrumless animal is the same animal, the same organism, as the animal before surgery. But if we are animalists who believe that the person goes with the cerebrum, then we are led to believe that the animal left behind is not identical with the animal before surgery. This result is implausible given that the same biological life is present. Also, (b) if the cerebrumless animal is not the same animal as the one before surgery, then a new animal has come into existence with the removal of the cerebrum. "But can you really create an animal merely by cutting away an organ belonging to another animal — one not even necessary for life?" (2015b, 105). It seems not. Furthermore, (c) if we are animalists and believe that the person follows the cerebrum, then we are led to believe that in cases where the cerebrum is successfully transplanted into a different body, the animal who has received the cerebrum is a different animal than the cerebrumless animal there before that was awaiting transplant. Assuming there aren't two human animals in that region after implantation, it follows that the cerebrumless animal has gone out of existence. Yet, it does seem odd to suppose

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<sup>21</sup> See, for instance, 1997b, 111–123, 2015a, §4, and 2015b, §9.

that an animal could be destroyed with the addition of a cerebrum. “[H]ow could you destroy an animal merely by supplying it with the organ — again, not even a vital organ — that it was missing?” (105).

In partial response to these objections, it should be noted that there are worries for traditional animalists who deny that the person goes with the brain/cerebrum, believing that our persistence has nothing to do with psychology. There are the *remnant person* worries for the traditional animalist which are analogous to worries (b) and (c) above that Olson raises for non-traditional (“new”) animalists who believe that the person goes with the brain/cerebrum. Johnston (2007) points out that if we were to remove someone’s brain and sustain it in such a way that the cerebral activity continues to yield personhood, then given that the person does not go with the brain, a new person (the remnant person) would be brought into existence when the brain is removed. Johnston reminds us that “[y]ou can’t bring a person into being simply by removing tissue from something [ . . . ] unless that tissue was functioning to suppress mental life or the capacity for mental life” (47).<sup>22</sup> Olson (1997b, 121; 2015a; 2016) describes an additional remnant person worry when the brain or cerebrum (just the cerebrum, suppose) is implanted in a new head. For the traditional animalist, the cerebrum does not become an animal when it is implanted; rather the animal awaiting transplant simply acquires a new part. Since this new part carries with it psychological states sufficient for personhood, the animal becomes a person when the cerebrum is implanted. So, assuming that there aren’t two persons in the same skin after the cerebrum is implanted, the result seems to be that the remnant person ceases to exist upon implantation. This result, Olson points out, conflicts with the *destruction principle* (which is just as plausible as the creation principle

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<sup>22</sup> Olson (1997b, 120) also mentions this problem.



Johnston mentions) that you cannot destroy a person merely by surrounding the person with sustaining tissues.

Olson (2015a, §4) points out that by denying that we are essentially animals, an animalist can avoid these remnant person concerns by insisting that the person goes with the cerebrum. These non-traditional animalists who support the cerebrum intuition, including any animalists who endorse H', avoid the remnant person worries by denying that a person comes into existence with the removal of a cerebrum and that a person ceases to exist with its implantation. It is true, as Olson adds, that the remnant person problems are avoided only with the cost of the corresponding "remnant-animal" worries, (b) and (c), mentioned above. Still, given the remnant person worries, it is not clear at least from (b) and (c) alone that non-traditional animalists who support the cerebrum intuition, including those who accept H' or certain other hybrid accounts of our persistence, are in any worse shape than the traditional animalists who reject the cerebrum intuition.<sup>23</sup>

Recall objection (a). If we are animalists who believe that the person goes with the cerebrum, then we are led to believe that the animal left behind is not identical with the animal before surgery. But, the objection goes, this result is implausible given that what is involved is the same biological life. Regarding the cerebrumless animal, Olson asks, "Would it not be the organism from which the cerebrum was removed? It would apparently have the same *life*, in Locke's sense of the word [...] that the original animal had" (2015b, 104). However, it is not clear why one should deny that continuity of life can be imparted to different organisms. Biological fission cases show that continuity of life is not sufficient for the persistence of an organism; if post-fission y and z are

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<sup>23</sup> Olson (1997b, 120–121) mentions this possible defense by one who supports a psychological account of the persistence of animals who are persons.

equally biologically continuous with x (with continuity of vital functions), then given that y is not identical with z, at least one of y and z is not identical with x. It might be insisted that *non-branching* biological continuity, with continuity of vital functions, is sufficient for the persistence of an organism. But whether this is true is precisely what's at issue in the debate over whether the persistence conditions of organisms who are persons are partly psychological. It is true that "if an organism's biological life carries on, we should expect it to continue to be the life of that same organism" (2015b, 104). This is what we should expect given that it usually is the case that only one individual partakes of any one life. But that this is what we should expect allows that in certain highly unusual cases, where something arguably relevant to the persistence of a person (such as unsurpassed P-continuity) vies with biological continuity, distinct individuals can partake of the same life. So continuity of life, even if non-branching, does not itself seem a strong enough reason to conclude that it is the life of the same organism.

It is also worth noting that given the distinction between being the same organism and having the same life, objections (b) and (c) make an animalist's support of the cerebrum intuition seem at least a bit more implausible than it really is. Olson describes the non-traditional animalist's view as entailing that animals are "created" and "destroyed" in the transplant case.<sup>24</sup> This description is somewhat misleading. Talk of an organism being created brings to mind a new biological life, a new set of vital processes, coming into existence; and talk of an organism being destroyed suggests that a set of vital processes has come to an end. But this is not what is happening in the transplant case, even for an animalist who believes that the person goes with the cerebrum. The animal before the removal of the cerebrum and the cerebrumless animal left behind are biologically continuous with continuity of vital functions, and when the cerebrum is implanted, the newly equipped animal

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<sup>24</sup> See, e.g., 1997b, 117–119, 2015a, §4, and 2015b, 105.

and the animal before awaiting transplant are biologically continuous with continuity of vital functions. In either case, it is the same life, i.e., the same set of vital processes. This is not creation or destruction of lives. So for the non-traditional animalist who believes that the person goes with the cerebrum, the number of animal *lives* involved in the transplant scenario is just as we would have expected: one on the donor side and one on the recipient side.

It is true, as Olson mentions (e.g., 1997b, 116–117 and 2015b, 104–105), that on the non-traditional animalist account, the number of *animals* in the transplant case is more than what one might have thought. According to the “new” animalist who believes that the person goes with the cerebrum, two individuals partake of the same animal life on the donor side (the one before cerebrum removal and the cerebrumless animal left behind). Given that there are two distinct individuals and both are animals, there are two animals. On the recipient side, there is the individual before the cerebrum was removed to make room for a new cerebrum. That’s a third animal. And if enough of the right sort of cerebral activity is sustained after removal, then with the non-traditional animalist view, the person follows the cerebrum here too, and the cerebrumless animal would be a different individual from the one there before, and a different animal since it is an animal. So, as Olson indicates, on the non-traditional animalist view the total number of animals involved in the case is *four* (the animal after implantation being the same individual as the animal on the donor side before cerebrum removal). That there are four animals involved might seem too implausible to accept. However, if we recognize the possibility of more than one organism partaking of the same life, and if we are also open to there being some good reason to believe that this is what happens in the transplant case (as an animalist who endorses H’ would insist), then the result that there are four animals involved is likely to seem not as implausible as it might initially appear.

So, in response to Olson's objections, there are the following points to consider. Animalists can avoid worries (b) and (c) by denying that the person goes with the cerebrum, but only at the expense of incurring the remnant person concerns analogous to (b) and (c), concerns which are avoided by non-traditional animalists who accept H' (or various other hybrid accounts of our persistence). Also, regarding (a): given the conceptual distinction between being the same organism and sharing the same life, it is not clear why one should deny that continuity of life, even non-branching continuity of life, can be imparted to different animals. An animalist who endorses H' would believe that there is good reason not to deny that continuity of life can be shared by different animals. Moreover, if we remain open to the possibility that there might really be some good reason to believe that continuity of life is imparted to different animals in the transplant case, and if we also keep in mind that on a non-traditional animalist account, life is not created or destroyed with the removal or implantation of the cerebrum, then the commitments of the view will perhaps seem not as implausible as Olson's descriptions suggest.<sup>25</sup>

Also, and very importantly, in weighing the pros and cons of conjoining animalism with H', let's not forget that adding H' to the view that we are animals captures more of what many of us are inclined to believe than does a traditional, non-hybrid animalist view, i.e., each of the four intuitions mentioned at the start.

## **5. In Sum**

Recall the following three compelling claims:

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<sup>25</sup> Also see Sauchelli's (2017, 213–214) explanation of how we can describe what happens in transplant cases in a way consistent with the cerebrum intuition but without any mysterious creation or destruction of animals. There is also Madden's (2016a) mention of plant cutting to show that it is not metaphysically mysterious for an organism to persist as a relatively small portion of its original size with the much larger portion becoming a new organism, and Madden also mentions plant grafting cases to show that it is not odd to suppose that one biomass can fuse with a much larger one, with the smaller mass persisting as the product of the fusion.

we existed prior to the onset of whatever psychological capacities are necessary for personhood, and we can continue to exist with the loss of those and other psychological capacities,

with the right sort of psychological continuity retained, the person goes with the brain/cerebrum in remnant person and brain/cerebrum transplant cases,

and

it is possible for us to survive gradual large-scale replacement of organic with inorganic parts.

Since each of these is a strong intuition, it is desirable to find a theory that entails all three. To reconcile the first two, we need a hybrid theory on which our persistence conditions are partly psychological and partly non-psychological.

If we also wish to maintain with the animalist that

each of us is numerically identical with an animal,

then we need to hold that the persistence of the animals with which we are identical is a partly psychological affair. Also, to allow the possibility of inorganic replacement, our analysis cannot entail that biological continuity is necessary for the persistence of the animals that we are. Yet, with some sort of physical continuity required, the hybrid account can avoid the implausible consequence Olson (2015b, fn. 16) described, and mentioned in section 4, of a person discontinuously jumping from the removed cerebrum after it is destroyed to the cerebrumless animal left behind.

So, inspired by the hybrid accounts of Langford (2014), Madden (2016a), and others, I proposed H which includes the idea of *the physical continuer with unsurpassed P-continuity*. The physical continuer with unsurpassed P-continuity can be wholly inorganic and it is the P-

continuous brain/cerebrum in remnant person and transplant cases. And since unsurpassed P-continuity might be none at all, H allows that we existed prior to P-capacities and can survive their loss. Also, H allows that we are identical with animals (but not that we are essentially animals given that we can persist in an inorganic state or as a brain/cerebrum).

The modification of H, H', ensures that we follow the most dominant physical continuer in branching cases where there is a tie in P-continuity. 'Significantly' was introduced to ease concerns about our persisting as more than just a very slightly dominant physical continuer, and the requirement that one is a *suitable* physical continuer was added to allow, among other things, limits on how minimal the physical continuity might be and limits on how far along we survive in the process of death or after. H' is compatible with various opinions on how dominant the physical continuer should be and what sort and degree of physical continuity is suitable. Talk of P-continuity in H' (and H) is also unspecified to allow differing views on what sort and degree of psychological continuity is relevant to our persistence. Thus, H' is a framework within which to accommodate each of the four intuitions mentioned with the basic insight that we persist as the appropriate physical continuer with unsurpassed P-continuity.

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