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ORIGINAL PAPER

# Strategy for Animalism

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**Abstract** The central argument for animalism is the thinking animal problem (TAP): if you are not an animal, there are two thinkers within the region you occupy, i.e., you and your animal body. This is absurd. So you are an animal. The main objection to this argument is the thinking brain problem (TBP): animalism faces a problem that is structurally analogous to TAP. Specifically, if animalism is true, you and your brain both think. This is absurd. So animalism is false. The purpose of this paper is to propose strategies animalists can endorse to solve TBP. I first show that animalists can solve TBP by arguing that it is not sound. This solution to TBP raises questions about personal identity over time and the mereological relation between the person and the brain. I argue that animalists can answer the personal identity question by endorsing non-biological persistence conditions as well as biological ones. For the mereological question, I first show that animalism is incompatible with four-dimensionalism and eliminativism. I then argue that animalists should endorse the dominant sortal account to answer the mereological question.

**Keywords** Animalism · Dominant sortal account · Mereology · Personal identity · Thinking brain problem

## 1 Introduction

Animalism is the view that we human persons are animals. And the central argument for animalism is the 'thinking animal problem (henceforth TAP).' This problem shows that denying the identity of the human person and the animal ends up

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with an absurd multiplication of thinkers. Specifically, if you are not an animal, there are two thinkers inside your skin. Whenever you have a thought, the animal—the perfect duplicate of you—also has the same thought. This is absurd. Further, if the animal thinks as you do, you cannot know whether you are a person or an animal. For there is no phenomenological difference between your mental states and the animal's mental states. This skeptical consequence is also absurd. Therefore, you are an animal.[1]

Critics of animalism say that animalism also faces the absurd multiplication of thinkers. To see why they say this, suppose for the sake of argument that you are an animal. You think in virtue of brain functions. If the brain enables you to think, it enables itself to think. After all, as many philosophers believe, if your brain is detached and kept functioning in a vat, then the brain in a vat (henceforth BIV) can sustain your mental states. This suggests the brain in a cranial vat can also think. As Lowe points out: "However, if a detached but functioning brain has thoughts and feelings, it surely follows that an embodied and functioning brain also has thoughts and feelings" (Lowe 2000, p. 286; cf. 2001, p. 142). This allows us to turn the animalist's reasoning for TAP against herself. That is, if the brain currently in your head thinks, animalists must concede that there are two thinkers inside your skin, i.e., you and your brain. This is absurd. Moreover, you cannot know whether you are a person or a brain. This is absurd too. Therefore, you are not an animal. Let us call this the 'thinking brain problem' (henceforth TBP).[2]

TBP forces animalists to identify a person with a brain, just as they identify a person with an animal in TAP. As a result, TBP makes animalism unstable by the animalist's own reasoning. In this paper, however, I propose strategies that animalists can endorse to solve TBP. I argue in Sect. 2 that TBP is not a sound argument because one of its premises is false. More precisely, the premise is based upon a false assumption that the detached brain's thinking implies the embodied brain's thinking. I reject this assumption by arguing that the BIV is a radically maimed person so is not identical with the embodied brain. My solution raises two questions. One is about persistence. What makes you and the BIV the same person over time? The other question concerns mereology. What happens to the brain that—before its detachment—was a proper part of you? I argue that animalists can answer the first question by endorsing non-biological persistence conditions as well as biological ones. For the mereological question, I first show that animalism is incompatible with four-dimensionalism and eliminativism. I then argue that animalists should endorse the dominant sortal account to answer the mereological question.

[1] For this line of reasoning, see Carter (1988), Mackie (1999a), Merricks (2001, pp. 85–86), Olson (1997, pp. 106–107; 2007, pp. 35–39), Snowdon (1990), and van Inwagen (1990, p. 290, n. 45).

[2] Olson (2007, pp. 215–219) considers a more general version of the thinking brain problem, according to which every part of the person containing a brain (e.g., upper halves, left-hand complements) is a candidate for being a thinker. He calls this the 'thinking parts problem.' However, it is controversial whether there are such super-cellular parts (cf. Burke 2003). Stipulation: in this paper, I shall assume that there are no super-cellular parts of a person. I rather focus on TBP because most of us (except for eliminativists, as we shall see in Sect. 4) believe that there are brains.

## 2 The Premise that the Brain Thinks

Let us formulate TBP as follows:

(1) I think my thoughts in the most literal sense.
(2) My brain thinks my thoughts in the most literal sense.
(3) I am not my brain.

Therefore, there are two distinct things that think my thoughts in the most literal sense.

Some might say that TBP is invalid: even if (1) through (3) are true, this does not imply the duplication of thinkers. To show its invalidity, proponents of this possible solution might attack the assumption of TBP that my brain and I are two *distinct thinkers* if I am not my brain. To see their argument, suppose that my left arm is injured. In this case, it is difficult to say that I am injured only in the derivative sense of having a part that is injured. Rather, if my left arm is injured, *I* am injured; I really have the property of being injured. But this does not imply, according to proponents of the present solution to TBP, that there are two distinct injured things. We do not usually say that both my left arm and I are injured. This is because my left arm's being injured just is my being injured in virtue of an intimate relationship between my arm and me; my arm, after all, is a proper part of me. This intimate relationship blocks the duplication of injured things. As a result, even though both "My left arm is injured" and "I am injured" are true, there is no problem of 'too many injured things.'

The relation between my left arm and me, according to the present solution, is similar to the relation between my brain and me. Both "I think" and "The brain thinks" are true. But my brain's thinking is my thinking, just as my left arm's being injured is my being injured. The non-identity of the person and the brain, thus, does not imply the duplication of thinkers. The person's relation to the brain is so intimate that the brain's thinking is not additive to the person's thinking. So even though (1) through (3) are true, there is no problem of too many thinkers: TBP is not a valid argument.[3]

[3] Some might want to develop a similar solution appealing to Thomasson's idea about 'analytic entailment' (Thomasson 2007). They might say that the claim about the person "analytically entails" (this is Thomasson's term) the claim about the brain, and vice versa. In other words, the truth of the claim about the person guarantees the truth of the claim about the brain. On this solution, 'I think' analytically entails 'My brain thinks.' Because there is "no rivalry" between the two claims, a competent speaker can infer one from the other. In fact, our imagined objectors might say that there is only one thinker inside my skin because they would count the number of thinkers by analytic entailment. However, if 'I think' entails 'My brain thinks,' we need to know why. The analytic entailment view simply says that a competent person uses language in a certain way to count entities. But it does not explain *why* we should use language in that way, even though the person and her brain are two distinct entities. So I believe the analytic entailment view is a linguistic solution and not an ontological one (cf. Baker, "Amie Thomasson on Ordinary Objects"). After all, TBP is not about how we use language to refer to a thinker. It is rather a serious ontological problem. It is about whether there *is* a thinker that is psychologically indistinguishable from me. I also reject counting the number of thinkers by analytic entailment for similar reasons I shall reject the present solution to TBP in the text.

This possible solution to TBP, however, does not work. I have three responses to it. My first response concerns the arm analogy above. One assumption behind this analogy is that the relation of my arm and me parallels the relation between my brain and me. The defender of TBP, however, can say this assumption is false. Recall that she supports premise (2) of TBP by appealing to the BIV case: if the BIV can think, the brain currently in my head can think. This shows, according to her, that the brain can have mental properties *on its own*—it can think in the most literal sense as I do. So, if I am not my brain and I think as a human animal, there are two distinct thinkers inside my skin.

This reasoning does not apply to the relation between my arm and me. Suppose that my arm is amputated and you break it. It is hard to say this amputated arm now has a property of being injured on its own in the same way the BIV—according to TBP—has mental properties on its own. We do not even want to say that the amputated arm's (alleged) injury is the same kind of property that I have when my current arm is injured. After all, *my* arm has the property of being injured only when it is a constituent part of me—it cannot get injured independently of its constituent relation to me. So it is hard to say that my arm's being injured is a distinct event from my being injured. This is why there is no multiplication of injured beings when my arm is injured. That is not the case with the brain. The BIV case, defenders of TBP say, shows that the brain can think independently even when it is not a constituent part of me. So, they say, the brain's act of thinking leads to the multiplication of thinkers.

The defender of TBP can therefore say that the arm case is not relevantly similar to the BIV case. The arm is not injured in the way the brain thinks. So the arm analogy does not show that the brain's act of thinking and my act of thinking are the same event. This is my first reason that the present solution to TBP (i.e., that TBP is not valid) fails.

Moreover, even if the person's thinking is identical with the brain's thinking, an epistemic problem remains. If I am something other than my brain, yet my brain thinks in the same sense as I do, then I am one of the two things thinking my thoughts. This makes it hard to see how I can know that I am a person thinking my thoughts. Whenever I think that I am a person, my brain (falsely) thinks that it is a person. If my thinking and the brain's thinking are identical, I therefore have no reason to suppose that I am a person (cf. Merricks 2001, p. 50). To the extent that I share such worries, I am not comforted to learn that my thinking just is my brain's thinking, if I am not my brain.

This is because TBP (as well as TAP) is a problem about the proper number of the *thinkers*. It is about whether there are two conscious entities sharing my thoughts inside my skin. Claims about how many *thinkings* there are will not help to assuage worries about how many thinkers there are. However, the present solution to TBP—i.e., that there is a mistaken assumption about how many thinkings there are—does not entail anything relevant about how many thinkers there are. So long as I am not identical with my brain and each of those entities thinks in the most literal sense, we will be confronted by worries about too many thinkers. The number of thinkings appears to be irrelevant. This completes my second reason that the present solution to TBP fails.

To see my last reason, recall that the logical structure of TBP is identical with the logical structure of TAP. I also assume, following virtually all animalists, that TAP is the central argument for animalism and so a valid argument. The animalist who endorses TAP, therefore, must say that TBP is a valid argument as well.[4]

Some might say that TAP is only an argument, not the only argument in favor of animalism. So, if there are other arguments for animalism, animalists could say both TAP and TBP are invalid. In response, although I acknowledge that there is other way to support animalism (e.g., Blatti 2012), I shall proceed to assume that TAP is the central argument for animalism.[5] I shall offer strategies which animalists can endorse to solve TBP, given the assumption that TAP is valid.

If TBP is a valid argument, animalists should show that it is not sound. So animalists should reject at least one of the premises of TBP. Which premise(s) should animalists reject?

Some might think that if both (1) and (2) are true, animalists should reject (3) by identifying me with the brain. If my brain and I are one and the same, then TBP goes away.[6] But this consequence goes against the animalist view that I am an animal, not a part of it. So animalists treat (3) as non-negotiable. How about (1)? Some eliminativists (nihilists) say that there are no persons as well as other material objects (e.g., Unger 1979; see also Horgan 1993; Stone 2005).[7] If this is true, (1) is false [so is (2)]. However, animalists say that we persons do exist as animals. Since my goal is to offer the animalist solution to TBP, I shall ignore full-blown eliminativism (as we shall see, some leading animalists endorse a modest version of eliminativism. This will be discussed later). So I assume that animalists accept (1). Animalists must then reject (2). Animalists must show that the brain does not think.

Of course, it is difficult to deny that the brain is causally necessary for the person's thinking. The person in normal circumstances could not think if she did not have a working brain. The brain, indeed, is the organ of thought and the person thinks with the brain and not with other organs (e.g., heart). But the claim that the brain's function renders possible the person's thinking does not imply the brain's thinking. For an analogy, suppose that I am fixing my old car. At the same time, I am also fiddling with wrenches, bolts, nuts, and so on. I should use them to fix my car. But it is not those things but I that fix the car. Likewise, the person (somehow) uses the brain for thinking, but it is the person and not the brain that thinks. Only the person is the subject of thoughts. So (2) is false.

[4] Sutton (2014) attempts to solve TAP by arguing that it is not valid: the animal's thinking is not additive to the person's thinking so there is no multiplication of thinkers, even though the person is not identical with the animal. But if my argument in this paper is correct, her solution to TAP fails.

[5] For an objection to Blatti's 'animal ancestors argument,' see Gillett (2013). After all, what TAP implies is that each of us is an animal in the sense of being identical with one (e.g., the only thinker within the region a person occupies). I believe animalists would accept this implication.

[6] By using this reasoning, Lowe (2001) argues that animalists should abandon animalism to solve TBP. For this argument, he, of course, assumes that (1) and (2) are true. Campbell and McMahan (2010) and Parfit (2012) would also say (3) is false because they believe the person is her thinking part, such as a brain or cerebrum. This 'embodied person view' is obviously incompatible with animalism.

[7] It seems that Parfit denies the existence of persons, but he actually does not endorse eliminativism (nihilism) about persons (Parfit 1984, p. 341).

This approach to TBP does not work until I attack the argument supporting (2)—the BIV case. This case is based upon the assumption that the BIV is numerically identical with the embodied brain prior to its detachment. This assumption is false. The BIV is *not* the brain that was once in a cranial vat but the person that survives the brain detachment. To see this, suppose that one of my fingers is cut off. As a result, I become smaller. But, as we usually believe, I continue to exist despite the loss of a finger. The same goes for the loss of arms or legs. If I lose my limbs, I dwindle but continue to exist.

The BIV case is not much different from the case of losing fingers or limbs (Merricks 2001, p. 52; Olson 1997, pp. 42–46; van Inwagen 1990, pp. 169–181). If my brain is detached and kept functioning in a vat, I am whittled down to brain size as a radically mutilated person. This does not imply that I am a brain. If the concept of 'being whittled down' is respected, the BIV case does not threaten the view that I—prior to the brain detachment—am an animal. My possibly being a brain-sized person, thus, is consistent with animalism (more on this in Sect. 3).

If this is true, the BIV is not the embodied *brain*. So the BIV's thinking does not imply the embodied brain's thinking. The BIV thinks as the same person as me, whereas the embodied brain is an organ that is merely used for my thought. So (2) is false. So TBP is not a sound argument.

## 3 The Persistence Question

The previous section's argument raises two questions. One is about persistence, and the other one concerns mereology. This section deals with the persistence question. The mereology question will be discussed in the next section.

Here is the persistence question: if I am identical with the BIV, what makes it the same person as me? Some leading animalists attempt to answer this question by appealing to the biological criterion of personal identity over time: a person persists through time if and only if the person continues to have a life (Olson 1997, 2007; van Inwagen 1990). According to these animalists, when the *whole* brain is attached to the life-sustaining system (e.g., the heart–lung machine), a biological life still flows into the BIV. More specifically, the brainstem, the biological control center of human animals, continues to coordinate vital functions in the vat, and this is how the BIV maintains a biological life. It follows that the BIV continues to exist as the same animal that existed prior to the brain detachment.

Animalists, however, do not have to endorse the biological criterion to justify that we go with our brains. Recall that animalism is the view that we human persons are animals. What TAP implies is that each of us is currently an animal in the sense of being identical with one (e.g., your being only thinker in your vicinity). So animalism is not the view that we are beings whose persistence conditions are entirely biological. Nor is it the view that we are animals essentially (cf. Olson 2007, p 26).

Though standard animalists believe that our being animals implies our having the biological criterion or our being animals essentially (e.g., Belshaw 2011; Olson 1997; Snowdon 1990), this is controversial. Some animalists believe that our persistence conditions are not necessarily maintaining life-sustaining functions

but retaining the organization of parts that apt for life (Ayers 1991; Feldman 1991; Mackie 1999b; Snowdon 2014). Our currently being animals is also consistent with a Lockean psychological criterion (McDowell 1997; Wiggins 1996; cf. Sharpe 2015). Animalism is also consistent with anti-criterialism: there is no informative condition that is both necessary and sufficient—that is, the criterion—for a person existing at $t_1$ to be identical with a person existing at $t_2$. On this view, our identity over time is not a matter of satisfying a criterion (Merricks 1998; Lim 2011; cf. Langford 2014). Animalists can also say that even though we are animals, we are not essentially animals (Merricks 2001, pp. 86–87).[8] Our currently being animals is indeed consistent with all these accounts of personal identity over time.[9]

So animalists do not have to endorse the biological criterion to justify the idea that we can be whittled down to brain size. Animalists can rather say that I go with my brain in terms of psychological continuity. Animalists can also say that I can be a BIV as a non-biological entity. I am neutral on this issue. This neutrality, however, does not affect my argument against TBP, especially (2). TBP, after all, is a challenge to the animalist claim that we are animals, not to the claim that our persistence conditions are entirely biological or that we are animals essentially. So whether animalists endorse the biological criterion or the non-biological criterion or anti-criterialism does not matter.

In conclusion, one's possibly being a brain-sized person is consistent with one's currently being an animal. Likewise, one's possibly being a brain-sized thinker is consistent with one's currently being a thinking animal. It follows that the assumption underlying (2) (i.e., the assumption that the BIV's thinking implies the embodied brain's thinking) is false. So (2) is false.

## 4 The Mereological Question

Let us turn to the mereological question. If BIV is a person, what is my relation to the brain that—before its detachment—was a proper part of me? What happened to the brain that existed in my skull? According to Lowe (2001), animalists cannot successfully answer this question unless they abandon their own theory.

[8] For recent discussions of various versions of animalism, see Bailey (2015) and Thornton (2016).

[9] Johnston (2007) develops the 'remnant person problem,' which is analogous to the BIV case. He argues that if animalism is true, then you cannot be the detached brain (or cerebrum) and this leads to a dilemma: either the remnant person has been with the person until its detachment, or suddenly comes into existence. Neither option is plausible. So, he concludes, animalism is false. But Johnston's argument attacks only one version of animalism, the view that we as animals have entirely biological persistence conditions. Animalists can identify you with the remnant person and argue that biological continuity is not necessary for personal identity. With this strategy, animalists can also argue that Johnston's own psychological continuity theory faces a dilemma analogous to the remnant person problem (Johnston 1987). Suppose that you lapse into a persistent vegetative state. If psychological continuity is necessary for you to persist, you are not the living organism in this state. This leads to two options: either it has been with you until you lose mental states, or comes into existence when you perish. Neither option is plausible. So it is not the case that psychological continuity is necessary for personal identity. This obviously goes against Johnston's psychological criterion of personal identity.

Lowe thinks that the original brain continues to exist in the vat; after all, it does seem that atoms that composed the brain in my cranial vat continue to compose the BIV. So if I am whittled down to brain size, then the brain and I are *coincident* in the vat. That is, according to Lowe, animalists are forced to endorse the idea that in the BIV case, the brain and I are composed of exactly the same atoms without being identical with each other. This type of coincidence should also allow coincidence of the person and the animal—the person and her constituting animal are composed of the same matter without being identical due to their different persistence conditions.[10] But, as Lowe says, coincidence of the person and the animal goes against TAP. So animalists cannot accept coincidence of the person and the animal. The same goes for coincidence of the person and the brain.

To avoid coincidence of the person and the brain, animalists should then ultimately identify the brain with the person. So animalism, Lowe concludes, collapses into the view that we are brains, not animals. As a result, animalism comes to be an unstable theory.

To solve this problem, animalists must endorse a theory that addresses the mereological relation between the brain and the person. I shall consider three theories animalists could attempt to endorse.[11] I then argue that only one of them is compatible with animalism.

### 4.1 Four-Dimensionalism

According to four-dimensionalism (Heller 1990; Lewis 1983), time is a fourth dimension, alongside the three spatial dimensions, and objects are extended in time as well as in space. More specifically, just as objects are extended in space by having different spatial parts located in different places, so they are extended in time by having different 'temporal parts' that occupy different times. On this theory, you are spread out over time, just as a spatially extended object is spread out over space. So you as a whole person are composed of all your temporal parts—you are an 'aggregate' of all your temporal parts. This implies that you are never wholly present at any moment (this is perdurantist four-dimensionalism. I shall discuss the stage view later). Rather, according to four-dimensionalists, you exist at a time by having a temporal part that is wholly present at that time. So your persistence is a matter of a relation between distinct temporal parts that compose you.

Four-dimensionalism implies that the BIV is not the whole person but one of temporal (and spatial) parts that compose her. The BIV also is a temporal part of the temporally-extended brain. The BIV, thus, is an overlapping part common to both the person and the brain. This four-dimensionalist view explains what it

[10] Constitutionalists, such as Baker (2000), Johnston (1987), Noonan (1998), and Shoemaker (2008), do not find this problematic. But animalism is incompatible with constitutionalism as animalists attack it by appeal to TAP: constitutionalism leads to the multiplication of thinkers.

[11] I believe animalists do not want to consider other theories, such as constitutionalism (for the reason discussed in the text and in footnote 10) and mereological essentialism (animalists typically say we can persist over time by gaining or losing parts).

means to say that both the person and her brain, two different objects, exist in a vat (i.e., the person exists there by having the-brain-in-a-vat temporal part, and so does the brain).

The four-dimensionalist response to the mereological question, however, is not a viable option for animalists. Animalists typically reject four-dimensionalism by arguing that it faces a multiplication of thinkers (Merricks 2001, pp. 96–99; Olson 1997, pp. 106–108; cf. Zimmerman 2003, pp. 501–502). To see this, recall that according to four-dimensionalism, you have a property at $t_1$ only insofar as your temporal part has it at $t_1$. For example, your currently sitting in a chair is your current temporal part's sitting in a chair. Likewise, for you to think at a time is for you to have a temporal part that thinks at that time. Suppose that you think at $t_1$. This means, according to four-dimensionalism, that there is a temporal part that thinks your thought at $t_1$. So the temporal part thinks just as you do. But, four-dimensionalists say, you are not the temporal part—you are an aggregate of all your temporal parts. It follows that there are at least two things that think your thought at $t_1$ (i.e., you and your temporal part that is wholly present at $t_1$). And your temporal part and you have exactly the same mental state. So you ought to wonder whether you are a whole person or the thinking temporal part. This is the familiar multiplication of thinkers. Animalists must deny any types of multiplication of thinkers to use TAP. So (perdurantist) four-dimensionalism is incompatible with animalism.

To avoid this multiplication of thinkers, some animalists might consider endorsing Sider's stage view (which is also called exdurantist four-dimensionalism). On this view, we are stages, that is, instantaneous things (Sider 2001). The stage view says that the subject of my current thought is my current thinking stage. There is just one thinker currently, and it is me. So there are no overlapping thinkers currently who have my thought. The stage view also says that even though I am a momentary entity, it makes sense that I have mental properties at previous or future times. For example, the claim that I had a thought at a previous time is true because I have a stage at that time, what Sider calls my 'temporal counterpart,' which had that thought. More generally, I have properties at different times by being related to my temporal counterparts that have those properties.

But if the stage view is true, we are momentary entities and so do not persist through time in the strictest sense. Friends of the stage view say that our persistence over time just is our having temporal counterparts over time. But temporal counterparts are themselves momentary entities, and this suggests that the stage view does not respect the strict sense of personal identity over time. Perhaps friends of the stage view would be welcome to endorse this consequence. But that conflicts with what most of us believe. It is hard to believe that I had a certain property in the sense that I am related to a certain past or future momentary stage that is not strictly myself. After all, I do not think animalists would want to say that we human animals are merely momentarily existing things. I find it hard to believe that a momentary entity can have biological functions (e.g., metabolism, breathing, circulating blood, digesting food), as well as mental properties. So I believe the stage view is not a viable option for animalists.

### 4.2 Eliminativism

Some leading animalists, such as van Inwagen (1990), Olson (2007), and Merricks (2001), attempt to answer the mereological question by eliminating brains from the animalist ontology. That is, on this eliminativist view, the brain in one's head does *not* exist, in the sense that atoms arranged brainwise do not compose any object. These eliminativists, of course, do not eliminate persons or human animals.[12] They are animalists. So they believe we human persons exist as animals. But, on their view, no other material objects exist, including brains, and this is the best way to solve TBP. So Olson says, "I am inclined to think that this is what animalists ought to do: they should solve their metaphysical worries by denying the existence of the entities [e.g., brains] that would generate them" (Olson 2007, p. 221).

Why do they say that brains do not exist? According to Olson and van Inwagen, atoms compose an object if and only if the activity of atoms constitutes a life. Let us call this 'biological eliminativism.' This theory says that the only material things that exist are living organisms and elementary particles. So atoms arranged human–animalwise compose us in virtue of constituting a life. On the other hand, the (alleged) brain is biologically alive only by the vital processes of the person it is a part of. The brain lacks a life of its own, and so there is no brain but just are atoms arranged brainwise in one's head (van Inwagen 1990, pp. 172–173; Olson 2007, p. 218). If there are no brains in the first place, animalists do not have to worry about the present mereological question. They can then say that atoms arranged brainwise in a vat compose an object in virtue of constituting a life: the BIV not a brain but a shrunken human animal (van Inwagen 1990, pp. 169–181; cf. Olson 1997, pp. 44–46, pp. 131–135; see also section 3).[13]

Biological eliminativism, however, is incompatible with animalism. To see this, suppose that your cerebrum is removed from your head and kept functioning in a vat while the rest of your body is destroyed. The result is a cerebrum in a vat (CIV). Obviously, the CIV does not have the brainstem—and the brainstem was already destroyed. Assuming that the brainstem is the biological control center of human animals, the CIV does not have any biological functions (e.g., metabolism, the capacity to breathe and circulate blood; cf. Parfit 2012). In light of biological eliminativism, atoms arranged cerebrumwise in a vat, then, do not compose any object. You are an object. So animalism combined with eliminativism imply that you are not the CIV. You rather ceased to exist when the rest of you was destroyed.

This poses a problem. It is a philosophical commonplace that if your cerebrum is removed and kept functioning in a vat, it can, in fact, think (Olson 1997, pp. 43–44,

[12] So these eliminativists would disagree with Unger (1979). As I said in Sect. 2, the goal of this paper is to develop the *animalist* solution to TBP. So I assume that eliminativism about persons is incompatible with animalism.

[13] Van Inwagen says that if atoms arranged brainwise in one's head are detached and kept functioning in a vat, a life flows into the 'brain' in a vat. As a result, atoms arranged brainwise in a vat compose an object. He thinks this object is *not* a brain but the original human animal that is whittled down to brain size. So, on his view, the brain still does not exist in a vat, as well as in one's head. See van Inwagen (1990, pp. 172–173).

pp. 141–142; Shoemaker 2008, p. 320; Parfit 2012). So we can assume in our case that the CIV or what eliminativists call 'atoms arranged cerebrumwise' in a vat can think. Now if those atoms do not compose any object, what is this thinking CIV? Where does this Lockean person (what Johnston calls 'remnant person') come from?[14] It is difficult to believe that new atoms that can think and remember your past experiences pop into existence as soon as you perish. The most obvious answer, then, is that the cerebrum (or what eliminativists call 'thinking atoms arranged cerebrumwise') has been with you until you cease to exist. This answer implies that there were *multiple thinkers* (i.e., you and your cerebrum or what eliminativists call 'atoms arranged cerebrumwise') within the region you occupied until the 'cerebrum' detachment. Animalists should see this as bad as saying there are two thinkers—you and the animal—inside your skin. So the conjunction of animalism and eliminativism leads to a consequence unacceptable to animalists. So animalism is incompatible with biological eliminativism.

Or put it this way. Given that CIV thinks, it is difficult to believe that atoms arranged cerebrumwise in a vat do not compose anything. This is because basic atoms or particles cannot themselves think and the act of thinking always requires a unitary subject of thought. This is indeed what Olson and van Inwagen endorse (Olson 2007, pp. 188–189; van Inwagen 1990, p. 118). So, if CIV thinks, there must be a composition in the vat. That is, atoms arranged cerebrumwise must compose an object, i.e., a thinker, in the vat. This goes against biological eliminativism. So, again, it is not a viable option for animalists.

Some animalists could then consider endorsing Merricks's version of eliminativism. According to Merricks (2001, Chap. 3), composition occurs if and only if the resulting being has non-redundant causal power. On his view, an object has non-redundant causal power if and only if it causes things that its constituent atoms do not in virtue of their spatiotemporal and causal interrelations. This implies that many alleged composite objects (e.g., baseballs) do not exist because they lack non-redundant causal power. In other words, everything they seem to cause (e.g., the shattering of the window) is overdetermined by spatiotemporal and causal interrelations of their constituent atoms.

On the other hand, Merricks says, our causally efficacious mental properties are the representative example of non-redundant causal power. Specifically, by having mental properties (e.g., my deciding to do such and such), *we* cause things (e.g., the atoms of my arm to move as they do) that are not overdetermined by spatiotemporal and causal interrelations of our constituent atoms. So atoms arranged human–personwise compose us. Given that the brain's existence implies its thinking and that human persons exist and think, Merricks insists that we need to deny the existence of the brain. This is the best way to answer the present mereological question (Merricks 2001, pp. 47–53, pp. 135–136).

Merricks's eliminativism, unlike biological eliminativism, implies that atoms arranged cerebrumwise in a vat do compose a person so long as their activities constitute causally efficacious mental power. So Merricks can say that a person could be

[14] For the 'remnant person problem,' see footnote 9.

whittled down to cerebrum size (as we have seen, Merricks believes that we are not essentially biological organisms). This seems to avoid the CIV problem presented above.

But Merricks's eliminativism, too, is incompatible with animalism. To see this incompatibility, suppose that your atoms arranged cerebrumwise are detached and kept functioning in a vat and the rest of your body is *not* destroyed. Suppose also that the rest of your body is biologically alive by being attached to a life-sustaining machine. This object may well be an animal, much like a patient in a persistent vegetative state. If the atoms arranged cerebrumwise in a vat compose you, then what is this left-behind animal? Where does it come from? If the cerebrum detachment does not suddenly create the animal, it must have been with you as until that detachment. But this implies that, prior to the cerebrum detachment, there were two animals within the region you occupied: you (the animal, given animalism) and the cerebrumless animal.

This multiplication of animals is as bad as the multiplication of thinkers presented in TAP. So Merricks's eliminativism is not a viable option for animalists.[15]

### 4.3 The Dominant Sortal Account

Now animalists are left with one option regarding the present mereological question—the brain ceases to exist when one gets shrunken. This is where the dominant sortal account comes in. On this theory (Burke 1994; Rea 2000), among the sortals satisfied by an object, one is the object's "dominant sortal" and this tells what the object really is.

To apply the dominant sortal account to our BIV case, let us consider a similar example that proponents of the dominant sortal account actually discuss. Tibbles, a cat, has a proper part Tib, which consists of all of Tibbles except her tail.[16] Obviously, Tibbles and Tib are numerically distinct. Suppose that Tibbles loses her tail. Tibbles can survive the loss of certain parts, and so still exists. And it seems that Tib survives as well. But Tibbles and Tib are two distinct objects, because they have different histories (e.g., Tibbles is a former 8 pounder, whereas Tib is not). It seems to follow that, after the tail detachment, Tibbles and Tib are two distinct objects that occupy just the same place.

Proponents of the dominant sortal account avoid coincidence of Tibbles and Tib by denying that Tib exists after the tail detachment. To this end, they argue that Tib and the post-amputation object are not identical because the latter's dominant sortal is 'cat.' Initially, the post-amputation object seems to be identical with Tib. This object, according to the dominant sortal account, indeed satisfies both the sortal

[15] For a more detailed discussion on the incompatibility of animalism and eliminativism, see Lim (2017).

[16] For the history of this puzzle, see Rea (1997, xviii). Recall that my argument in this paper focuses on the thinking brain problem only. So I use the Tib–Tibble case to make an analogy to that, not its more general version, i.e., the thinking parts problem. See footnote 2 for my stipulation about super-cellular parts of a person.

'torso' (this is an invented sortal term for all of a cat except some proper parts) and the sortal 'cat.' Which sortal is dominant? According to Burke, an object's dominant sortal is "the one whose satisfaction entails possession of the widest range of properties" (Burke 1994, p. 610; cf. Rea 2000, pp. 186–190). In the current case, 'cat' dominates 'torso' because the former, not the latter, entails wider range of properties, including behavioral properties (most torsos are merely proper parts of cats so they don't breathe, sleep, hunt or mate). If the post-amputation object's dominant sortal is 'cat,' the object then is a cat, and so identical with the original cat (Tibbles). Where is Tib? Suppose that cats are cats essentially and torsos are torsos essentially. The post-amputation object's dominant sortal is 'cat,' and has been already identified with the original cat. It follows that when the tail is detached, Tib goes out of existence. Therefore, after the tail detachment, there is no coincidence of Tibbles and Tib.

The Tib–Tibbles case parallels our BIV case. The brain is a proper part of the person, just as, prior to the tail detachment, Tib is a proper part of Tibbles. Suppose that the person's brain is detached and kept functioning in a vat. The BIV satisfies both the sortal 'brain' and the sortal 'person' (note that we are assuming that the person is whittled down to brain size). Which one is the dominant sortal? Which sortal entails possession of the wider range of properties? It does seem that 'person' dominates 'brain.' Here are some properties that the person, not the brain, has. The person has mental properties while the brain, as we have seen in Sect. 3, does not. The person in normal circumstances, not the brain, has behavioral properties (e.g., prior to the brain detachment, the person can play basketball while the brain cannot). The person has the property of persisting without having the brain (e.g., I was once an early-term fetus), while the brain, obviously, does not. And so on.

The dominant sortal for the BIV, thus, is not 'brain' but 'person.' Since an object's dominant sortal answers the "What is it?" question for that object, the BIV is a person. What happened to the original brain? In the vicinity of the BIV, there is a single object, and this object has been already identified with the original person. Suppose that persons are persons essentially and brains are brains essentially. Then, we can conclude, the brain that was a proper part of the person goes out of existence when the person is whittled down to brain size.[17]

My proposed answer for the mereological question is a conditional one: animalists can solve TBP if the dominant sortal account is true. But this is not a place for defending the dominant sortal account. The purpose of this paper is to show which mereological theory is compatible with animalism, given that animalists must rely on such a theory. In this respect, one important truth I have shown is that eliminativism, some leading animalists' option, is incompatible with animalism due to its multiplication of thinkers or animals. As we have seen, four-dimensionalism is not

[17] According to Rea, "an object satisfies a sortal in the *classificatory* way just in case that sortal gives the metaphysically best answer to the "What is it?" question for that object, and an object satisfies a sortal in the *nominal* way just in case the object exemplifies the distinctive qualitative features of those things that satisfy the sortal in the classificatory way" (Rea 2000, p. 172). If this is correct, the BIV is a person in the classificatory sense and a brain in the nominal sense.

a viable option for animalists mainly because it is also vulnerable to the multiplication of thinkers. The dominant sortal account does not have this problem. To answer the mereological question, animalists must rely on a theory that does not imply the multiplication issue; otherwise, they cannot use consistently use TAP to argue for animalism. So I conclude that the dominant sortal account is the best option for animalists.

## 5 Conclusion

I have proposed strategies that animalists can endorse to solve TBP. Animalists can solve TBP by showing that it is not a sound argument. This solution raises questions about persistence and mereology. Animalists can answer the persistence question by endorsing non-biological persistence conditions as well as the biological criterion of personal identity. To answer the mereological question, animalists should endorse the dominant sortal account.

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