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Reviving the Body

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REVIVING THE BODY

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What are we? According to the two most common answers we are either psychological beings or biological organisms. In my dissertation I develop a novel account, which combines the advantages of these views while avoiding their main pitfalls. I start by arguing against the most developed theory of organism persistence, according to which human organisms persist in virtue of their brainstems persisting. Next, by drawing on the literature on natural properties and biological laws, I argue that biological organisms can persist through death. While organisms don't necessarily cease to exist when they die, we normally do: according to my New Bodily View we are bodies that are bundles of physical and mental tropes, whereas organisms are bundles of exclusively physical tropes. This account not only solves various metaphysical problems about the relation between persons and organisms, but can also handle a novel puzzle I raise for rival views concerning the relation between bodily and self-awareness.

For Roza Tzinman

and David Kovacs

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Introduction

What are we? What is our body? How are the two related? The next four chapters explore these questions, and develop a new way to think about bodies and our relation to them. The view that will be developed – the new bodily view – will serve as an alternative to the main theories of personal identity. According to this view, we are identical to our bodies. However, our bodies are not identical to human animals, but are composed of them and of other properties.

The two main competitors that the new bodily view attempts to replace are animalism (Ayers 1991, Carter 1989, 1999, Olson 1997, Snowdon 1990, 1991, 1995, van Inwagen 1990, Blatti 2012, Hershenov 2005a, Mackie 1999a, 1999b, Merricks 2001) and constitutionalism (Baker 2000, Johnston 2007, Shoemaker 2011, Sosa 1987, Doepke 1996). According to animalists we are identical to human animals. We therefore have the persistence conditions of human animals. Note that this does not automatically entail that when human animals die, we die. If human animals survive death as corpses, and we are identical to them, then when we die we becomes corpses. According to constitution views we are persons who stand in a non-identity relation to human animals: we are constituted by human animals: "a person made of the same matter as a certain animal, but they are different things because what it takes for them to persist is different" (Olson 2015).

Intuitively, one would think that the word 'body' is simply another term used to refer to the human animal. In the personal identity literature, some use the word as a synonym for 'human animal', or at least seem to (see Thomson (1997) and Williams

(1970)) and in the philosophy of mind it seems to be taken for granted that the body is simply the human animal.[1] However, others argue that the term should not be used at all, since it is too ambiguous to be useful (Olson (2006), van Inwagen (1979)) and since it is parasitic on the term 'human animal', i.e. we only understand it in relation to the term 'human animal' (Hershenov (2005)). Since it has been assumed that the body just is the human animal, the first two chapters examine what human animal persistence amounts to. The first two chapters examine issues related to the persistence of human animals (the object that many take to simply be the body). In particular, the first chapter focuses on whether it is possible to account for the persistence of the human animal in terms of one of its parts. The second chapter then argues for the view that human animals can continue to exist as corpses. The third chapter examines what our relation is to the human animal. The chapter develops what I call the new bodily view, according to which bodies are not identical to human animals. The fourth chapter first departs from metaphysical issues in personal identity and examines the relation between self-awareness and bodily awareness. It ends by building on these results to construct a new puzzle for constitution views. In what follows, I will give a more detailed breakdown of the chapters.

Chapter 1: Organisms, Life and Criteria of Persistence

This chapter focuses on a question that is distinct from the questions "what are we?" and "what are our persistence conditions?", but it has consequences for how we answer the latter question, if we think we are identical to human animals. I closely

[1] A good example is Gallagher's *How the Body Shapes the Mind*. He uses the term 'body' as a synonym for 'human animal'. De Vignemont (2012) explicitly states that she assumes the body is the human animal (or "the body as defined in biology").

examine and argue against one of the most prominent accounts of human animal persistence, proposed by Eric Olson. Olson argues that the persistence of the brainstem is necessary and sufficient for the persistence of human animals. While initially plausible – the brainstem is the organ that controls the human animal's vital functions, and it was also used as a criterion of death in the medical profession – it also has some counterintuitive consequences. The account entails, for instance, that human animals can survive the loss of their cerebrum, as well as other parts, as long as the brainstem remains intact. After showing that Olson is committed to this view, I argue through constructing two thought experiments that there are reasons to think that the persistence of the brainstem is neither necessary nor sufficient for the persistence of human animals. If that is the case, then, it is unlikely that the persistence conditions of human animals can be given in terms of one of their parts.

Chapter 2: Is Romeo Dead? On the Persistence of Organisms

(Or: Are there dead animals? If so, are they identical to the living animals they seem to result from?)

According to some, in particular van Inwagen (1990) and Olson (1997), animals do not survive their death. What we take to be dead animals are merely particles arranged in a particular way (dead animal-wise), which do not compose anything. In other words, at death animals (and organisms more generally) simply cease to exist. Against this view, I argue that animals can continue to exist as corpses by drawing on areas that have not

figured in this debate so far: population ecology, behavioral ecology and ethology and the literature on naturalness.

This chapter is not focused on personal identity question, but animal persistence more generally. However, the conclusion of this chapter (that animals can continue to exist after death) will be important for developing the new bodily view.

Chapter 3: Reviving the Body: What are bodies? What are we?

This chapter develops the new bodily view. In a nutshell, the bodily view consists of the following claims: (i) We are identical to bodies; (ii) bodies are distinct from human animals; (iii) human animals compose bodies, along with other psychological and physical properties; (iv) the conjunction of some of the psychological and physical properties that compose bodies is necessary and sufficient for the persistence of bodies, and therefore for our persistence.

The main way I argue for the new bodily view is by arguing that it offers the best balance between two virtues: it can solve (or avoid) puzzles and it can preserve some of our intuitions about ourselves. One of the main motivations for constitution views such as Baker's (2000) is that it preserves some of our most basic intuitions about ourselves: we are essentially persons, and would therefore not be able to survive the destruction of our psychological properties, but we are also essentially physical (or embodied) things. However, the constitution view faces some puzzles that are avoided by animalism, e.g. it must explain why it does not entail (as it seems to) that there are two thinkers located where I am, namely the person and the human animal, rather than just one thinker (e.g. a

thinking human animal). The bodily view allows us to preserve our intuition that we are embodied psychological beings. However, it also avoids some of the theoretical puzzles faced by the constitution view, such as the puzzle mentioned above. In addition, I also show that an appropriate solution to what is known as the thinking parts problem – arguably a problem both for animalists and constitutionalists – favors the bodily view.

Chapter 4: Self-Awareness, Bodily Awareness and the Bodily Awareness Puzzle

The final chapter examines the relation between bodily- and self-awareness. I try to examine several ways in which the relation between the two forms of awareness has been construed. I then argue that even if we think that bodily awareness is not a form of self-awareness, we should accept the claim that bodily awareness and self-awareness can be identical states. In other words, even if we cannot subsume one form of awareness under the other, we can admit that sometimes, a token of self-awareness is identical to a token of bodily awareness.

I conclude the chapter by constructing a novel puzzle for views according to which we overlap or coincide with but aren't identical to our bodies (e.g. Baker 2000, McMahan 2002, Noonan 2003). The puzzle goes as follows. If persons are bodily aware but aren't identical to their bodies, then they are bodily aware derivatively: in virtue of the fact that their bodies are bodily aware. On the other hand, according to these views, persons are self-aware non-derivatively. This leads to a problem: if it is possible for a token state of bodily awareness to be identical to a token state of self-awareness, then the same entity – the person – has (or is in) a single state both derivatively and non-

derivatively. While it is not generally impossible to have a property both derivatively and non-derivatively, I will argue that it is impossible to have the same *instance* of the same property in both ways. Thus, body-person coincidence views appear to entail a metaphysical impossibility. Unlike other familiar puzzles, which usually involve the multiplication of thinkers, this one will focus on a single property had in incompatible ways by the same object, and relies on premises generally accepted by all parties to the debate.

Chapter 1: Organisms, Life and Criteria of Persistence

Two of the main questions in the personal identity literature are: What am I? Under what conditions do I persist over time (assuming we can specify such conditions)? The positions in the debate can be roughly divided into psychological and physical/biological theories. On any kind of psychological theory we are essentially persons – beings of psychological nature, with self-consciousness, memories, that are capable of thought etc. Accordingly, what makes us the same beings over time is of psychological nature (for instance, continuity of memories and consciousness). Any kind of biological or roughly physical theory will have it that we are essentially material beings (for instance, animals). Therefore, according to such a theory we can survive (i.e. persist through) a complete loss of consciousness and memories.[2] The two views are normally thought to be mutually exclusive.[3]

In this chapter I will not focus on the question of what our relation is to our bodies, or whether we are essentially animals or not. Before we go on to examine such questions, we need to know what the aforementioned criteria of our persistence even amount to. Normally, the psychological persistence criterion involves continuity of consciousness and memories.[4] In this chapter I will focus on the less discussed question of what the criterion of persistence is for the biological approach. While many think

[2] I do not mean to suggest that all those who are committed to the claim that we are essentially psychological beings or, e.g., human animals, are also committed to the claim that necessary and sufficient conditions of persistence can be derived from the account of what we are. It is perfectly consistent to hold that we are, for instance, psychological beings, and to be an anti-criterialist about persistence conditions (see Merricks 1998; Lowe 2012).

[3] Wiggins (1980) can be read as attempting to claim that we are human animals and as such members of our kind typically have psychological features. Snowdon (1996) discusses some difficulties with his position.

[4] See Locke (1690/1975), Parfit (1984).

that we are essentially human animals[5], only a few proponents of the approach specify the persistence conditions of human animals. In what follows I will present a few attempts to specify persistence criteria for organisms. A short examination of such accounts will suffice to show the problem with persistence conditions that are supposed to apply to organisms in general. I will then focus on the main attempt, defended by Eric Olson, to provide persistence conditions for one kind of organism, namely human animals. I focus on Olson rather than on other proponents of animalism for two reasons. First, while animalists agree that our persistence conditions are those of human animals, some proponents of animalism stop short of saying what exactly those persistence conditions are, and others don't provide persistence conditions that are informative enough and thus helpful for determining human animal persistence.[6] According to one strand of animalism the necessary and sufficient condition for animal persistence is sameness of life over time. Olson belongs to this strand of animalism, but he goes further and gives an account of what sameness of life consists in.[7] As a result, his view is also the most detailed. The second reason that I will focus on Olson's view is that his

[5] Ayers 1991, Carter 1989, 1999, Olson 1997, Snowdon 1990, 1991, 1995, van Inwagen 1990, Blatti 2012, Hershenov 2005a, Mackie 1999a, 1999b, Merricks 2001.

[6] According to Snowdon, "there is no real controversy…over the claim that certain continuities to do with an animal's body are sufficient for the persistence of the animal. If the body of an animal remains intact and sustains the processes we call 'life', the animal in question has survived. Animalism seems to imply that such conditions are sufficient for our survival" (1995, 71). Snowdon does not commit himself to the thesis that life is necessary for the persistence of the animal (1995, 71). Thus Snowdon does not give us necessary and sufficient conditions persistence conditions. He at best accepts the sufficient condition that if the body of an animal remains intact and supports the life processes, the animal survives. Van Inwagen (1990) thinks that the persistence of the organism has something to do with the continuation of its life process. However, he does not give necessary and sufficient conditions for the persistence of that life process. Wilson (1999) gives persistence conditions for the different kinds of individuals he distinguishes. His account of human persistence is close to van Inwagen's and therefore also to Olson's.

[7] One might initially be tempted to think that van Inwagen (1990) is committed to an account similar to Olson's. Van Inwagen (1990) claims that life is a criterion for the existence of a composite object, i.e. an organism. And in his discussion he stresses the importance of the organ of maintenance for the survival of an organism. His account, however, is not mainly concerned with *human* animals in particular. Furthermore, while he specifies how we normally individuate a life over time, the account does not amount to a set of necessary and sufficient conditions for the persistence of organisms (van Inwagen 1990, 149-157).

view seems prima facie very natural. According to Olson, the persistence criterion for the human animals involves the brainstem. It is common to distinguish several concepts of death in the medical profession. One of these is brainstem death, i.e. the death of the human animal is established by establishing brainstem death. Given that the centrality of the brainstem for determining death is already present in medical practice, Olson's view seems appealing.[8]

Importantly, the discussion that follows in this chapter is independent from the personal identity debate. If we are essentially animals, then the persistence conditions of human animals are our persistence conditions. If we are essentially psychological beings rather than animals, then these persistence conditions will not be our persistence conditions, but only the persistence conditions of the human animals somehow related us.

1. Accounts of Organism Persistence

Before discussing accounts of *human* persistence – i.e. persistence conditions of human animals, whether or not those are identical to human persons – I will discuss accounts of organism persistence in general. This discussion will highlight some of the general features of organisms that accounts of human persistence draw on. Furthermore, and more importantly, it will show why an account of organism persistence in general does not automatically give us an account of human persistence.

[8] The diagnosis of death is not uniform. For instance, in the UK brainstem death alone equates to the death of the individual, whereas in the USA and many other European countries it is necessary to prove the death of the whole brain, including the brainstem, before establishing the death of the individual (Johnston and Matta, 2003). Presumably, these practices and theories reflect different epistemic criteria of death.

Two very different accounts of biological individuality should convince us that attempts to find persistence conditions for organisms in general will be unsuccessful. The first account is pluralism about biological individuals. The second account defends a kind of monism. The first, pluralist, view, tries to capture the diversity of biological individuals. Biological individuals are not exhausted by the category 'organism'. Instead, biological individuals may be identified through a variety of criteria, or captured by a variety of concepts, each of which may have a different extension. The second view – the Tripartite View of Organisms - tries to both capture the diversity of biological individuals while emphasizing that there is an umbrella kind that can capture something common in this diversity.

According to Jack Wilson, who argues for a pluralist account of biological individuality, we must distinguish the following concepts of individuality (which are not supposed to be exhaustive) when we ask "what is an individual?":

1. It is a *particular*. A biological entity is a particular just in case it is neither a universal nor a class.
2. It is a *historical entity*. A biological entity is a historical individual if it is composed of spatiotemporally continuous parts.
3. It is a *functional individual*. A biological entity is a functional individual if the parts which compose it are causally integrated into a functional unit.
4. It is a *genetic individual*. A biological entity is a genetic individual if its parts are all share a common genotype.
5. It is a *developmental individual*. A biological entity is a developmental individual if it is the producer of a developmental process.
6. It is a *unit of evolution*. A biological entity is a unit of evolution if it functions as an important unit in an evolutionary process. (Wilson 1999, 60)

According to Wilson, "individuality simpliciter does not work for biological entities….Individuals of these different kinds tend to overlap with one another; an

adequate theory of individuation must provide a consistent account of this overlap" (Wilson 1999, 68). Thus Wilson's view entails that when giving an account of organism persistence we must be clear about what *concept* (and since the concepts capture kinds of individuals – what kind) of an individual we have in mind. The persistence conditions of a functional individual are different from those of a genetic individual. We cannot give persistence conditions of biological individuals simpliciter. As we shall see, the accounts of organism persistence I will examine emphasize different understandings of the notion "individual". Van Inwagen, for example, seems to have the functional understanding of biological individuals in mind.[9]

The second kind of account of biological individuals, the monist account defended by Robert A. Wilson, is called the Tripartite View of Organisms.[10] This view advocates monism in a way that is compatible with pluralism (Wilson and Barker, 2013). According to this view an organism is:

a. a living agent
b. that belongs to a reproductive lineage, some of whose members have the potential to possess an intergenerational life cycle, and
c. which has minimal functional autonomy. (Wilson 2005, 59)

One might hope that a monist view might offer a way to defend an account of organism persistence simpliciter. The above features seem to be very intuitive, and will play a role when I argue against Olson's account of persistence later on in this chapter. However, what is important for our discussion is that on this view "living agent" is a homeostatic property cluster kind (HPC). Natural kind terms are defined by

[9] This is how Wilson understands van Inwagen's accounts of organisms and organism persistence (Wilson 1999, 102).
[10] See Wilson and Barker (2013) and Wilson (2005, chapter 3)

clusters of properties, and an individual to which the term "organism" applies does not need to possess one or a particular n-tuple of this cluster. However, all such individuals must possess some n-tuple of the cluster (Wilson 2005, 56). According to Wilson living agents are defined by something like the following cluster of properties. They are causally integrated entities with a physical boundary that are a locus of causation (agents) and:

- have parts that are heterogeneous and specialized
- include a variety of internal mechanisms
- contain diverse, organic molecules, including nucleic acids and proteins
- grow and develop
- reproduce
- repair themselves when damaged
- have a metabolism
- bear environmental adaptations
- construct the niches they occupy (Wilson 2005, 57).

Thus we see how this view respects the pluralist intuition concerning biological individuality: since no one living agent must possess any one property in the cluster, living agents may differ greatly with respect to the properties they possess, possibly with no single feature they share. This means that if we want to provide the persistence or the existence conditions of organisms (or of biological individuals), we should first be clear on what properties the individual in question possesses (or to put it in terms of the Pluralist view, we should first understand what kind of biological individual we are interested in).

This point may seem obvious. However, we will see that van Inwagen does not address these points and that his account – to the extent that it is supposed to also provide some account of the persistence of organisms and not only of their existence –

suffers from this lack of specificity. Van Inwagen accounts for organism persistence in terms of lives, i.e. the activities of the simples that compose the organism. However, he does not specify any restriction on what other changes a composite object can undergo. While a life may be necessary and sufficient for a composite object – an organism – to exist, a life may be difficult to identify and reidentify without reference to its owner. But if we give the necessary and sufficient persistence conditions of its owner (e.g. an organism) in terms of a life, and also identify and reidentify a life in terms of its owner, we might be a problem if we want persistence conditions that are more informative (and not circular). In addition, even if we do not think that the latter concern is a deep worry (for instance, because the notion of a life gives us precise persistence conditions, even if they are not as informative as we would hope, and because they are as informative as possible), it is necessary to be clear about the notion of a life used in the persistence conditions of an organism. For example, is it a notion that only draws on the idea of a functional individual, or a notion that also draws on the concept of a genetic individual?

In the next section I will examine van Inwagen's account. We will later see that Olson's account, which draws on van Inwagen's, also suffers at times from lack of specificity with respect to the target notion of a life at issue. Olson's notion of a life, we will see, is ambiguous between two disambiguations: one disambiguation that draws on the notion of a functional individual and one that draws on the notion of functional individual that overlaps genetic and developmental individuals.

1.1. Van Inwagen

Van Inwagen's account of the persistence of organisms arises in the context of answering the special composition question: for any xs, under what conditions is there a y that the xs compose?[11] According to van Inwagen for any xs, those xs compose something just in case their activity constitutes a life. So far this only provides us with a criterion of what makes something a living object at a time, i.e. a criterion of what makes something an organism. This criterion does not yet provide necessary and sufficient conditions for identity over time. Van Inwagen also has an account of what a life is, and his diachronic identity criterion seems to draw on this account.

A life is a self-maintaining event that is self-directing and is reasonably well-individuated.[12] Van Inwagen claims that it is often reasonably clear whether a life observed at a time is the same life observed at another time (or place) (van Inwagen 1990, 87). For example, since a life is a self-directing event, then we can reasonably reidentify it over time as follows. If a life is presently constituted by the activities of the xs and was constituted by the activities of the ys ten years ago, it seems natural to identify the life presently constituted by the xs with a life constituted by the ys if the life constituted by the xs propagated itself along a continuous path in space-time from the earlier to the present space-time location (van Inwagen 1990, 87).[13] Thus spatio-temporal continuity seems to be at least initially a sufficient condition for the

[11] Given the general aim of his project, it is understandable that he does not focus in particular on human animals.
[12] Presumably, it is only reasonably well-individuated because van Inwagen holds that composition and parthood are a matter of degree.
[13] This construction seems to already presuppose that we know that Life1 is the same as Life2.

persistence of a life according to van Inwagen. As we shall see, however, van Inwagen modifies this claim and adds further conditions for the persistence of a life.

A life is also a jealous event: a composite object can only be animated by one life. The activity of the xs can only constitute one life at a time. Van Inwagen examines a case in which one would think that lives overlap. He asks us to imagine that Alice and Beatrice are fused in the following way:

> A mad surgeon cuts off Alice's left hand and Beatrice's right hand and joins their stumps together, so that they look rather as if they were part of a chain of paper dolls. The surgeon thus produces what might be described as a case of artificial Siamese twins. It is at least theoretically possible that the anatomy of Alice's wrist be so nearly an exact match to the anatomy of Beatrice's wrist, and the healing of one to the other be so nearly perfect, that no boundary between Alice and Beatrice be discoverable. (van Inwagen 1990, 59)

According to van Inwagen there is nothing that Alice and Beatrice compose. He maintains that this is not a case of two overlapping lives. Instead, the case only shows that it is possible for the "vague haloes of influence that surround lives to overlap" (van Inwagen 1990, 89). Van Inwagen allows for a life to be subordinate to another as a form of overlap. However, this is not a case in which two lives overlap "without one being subordinate to the other" (van Inwagen 1990, 89).[14] There are at least two ways to interpret the claim that Alice's life and Beatrice's life do not overlap. According to the first interpretation the particles that Alice and Beatrice seem to be sharing belong to neither of them simpliciter, but rather to a degree n, where $0<n<1$. Van Inwagen thinks that composition and parthood are vague; it therefore seems plausible to also claim that the overlapping relation is vague. So Alice and Beatrice do not overlap, on this interpretation, in the sense that there is no part that belongs to both of them to a degree

[14] One may wonder why two lives don't overlap if they share some of their parts (albeit to a degree that is less than 1). For the sake of the argument I assume that this position is unproblematic.

1.[15] The second, less plausible interpretation of this claim is the following. Van Inwagen might possibly be denying the claim that the parts that Alice and Beatrice seem to share belong to any one of them. This would be a strange view to hold. It would amount to the view that if some sub-plurality of the xs that compose Alice happen to be identical to a sub-plurality of the ys that compose Beatrice (call this sub-plurality the zs), then the zs no longer belong to either Alice or Beatrice.

It is also unclear why vagueness is a good reason to deny overlap. Composition is vague according to van Inwagen in the sense that "There are xs such that it is not definitely true not definitely false that the activity of the xs constitutes a life" (1990, 271). Presumably, this also means that it is vague not only whether all the xs constitute a life, but also whether some xs participate in a life. If it is indeterminate whether such xs participate in Life L1 and in Life L2 because they belong to them to a degree n, where $0<n<1$, it should also be indeterminate whether L1 and L2 overlap. And if it indeterminate whether L1 and L2 overlap, it is neither definitely true *nor definitely false* that they overlap. If van Inwagen suggests that the two lives in fact do not overlap given this condition, the following conditional must be true: if it is indeterminate whether x belongs to L, then x does not belong to L. But the conditional must be false according to van Inwagen's own account.

[15] However, it seems unclear why van Inwagen would say that a particle x that belongs to a Life L1 to a degree n ($0<n<1$) and to a life L2 to the same degree only shows that the vague haloes of influence that *surround* lives overlap. Such an expression would seem to suggests that x does not belong to L1 nor to L2, but merely influences them. On this interpretation of the expression, the reasoning behind the claim that x only belongs to the particles that *surround* L1 and L2 is be the following: if x belongs to Life L to a degree n, where $0<n<1$, then x does not participate in L, but merely surrounds it. If the conditional is true, then composition in such a case does not demonstrate vagueness: composition only occurs when x belongs to L to a degree 1. However, one can also understand the expression about vague haloes of influence that surround lives as merely restating the thesis that composition is vague. This is how I understand the expression here.

Setting these complications aside, in what follows I will refer to the feature of life that underlies the claim that Alice and Beatrice do not overlap as *Jealousy*:

> *Jealousy*: Kind K is jealous iff (if the activity of the xs constitutes an instance of K, k1, at t, then the activity of no ys that overlap the xs can constitute another instance of K, k2, at t, unless one of k1 and k2 is subordinate to the other at t).[16]

By claiming that a life is subordinate to the other I take him to include cases like pregnancy. It is unclear what van Inwagen would say about symbiosis, e.g. bacteria in an organism's gut. It is likely that in such a case he could argue that if the bacterial life is constituted by particular xs that are distinct from the ys that compose the organism, it can exhibit jealousy, despite being located inside an organism.

According to van Inwagen objects that partake in or whose activity constitutes a life thereby compose an organism.[17] For this reason, van Inwagen endorses the following principle for organism persistence over time.[18] The principle is supposed to also cover cases in which the organism may be frozen, but not dead. To include this as a genuine case of a life van Inwagen includes the notion of "resulting from a life":

> *Life Principle*: If the activity of the xs at t_1 constitutes or results from a life, and the activity the ys at t_2 constitutes or results from a life, then the organism the xs compose at t_1 is the organism the ys compose at t_2 if and only if the life that the activity of the xs at t_1 constitutes or results from is the life that the activity of the ys at t_2 constitutes or results from. (van Inwagen 1990, 148-149)

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[16] I am following Van Inwagen in calling this characterization of a life as jealousy. See van Inwagen (1990, 89-90).

[17] Both van Inwagen and Olson use "organism" and "animal" interchangeably and so will I.

[18] This is a Lockean view, on which sameness of life is a criterion for organism persistence.

According to this principle the persistence of a life is necessary and sufficient for the persistence of an organism. Van Inwagen says a few things about what it might be for a life L1 to be identical to a life L2. We have seen that a possible sufficient condition for the persistence of a life is spatio-temporal continuity. Van Inwagen further proposes that temporal continuity is a necessary condition of the persistence of a life: if a life is going on at t_1 and t_3, then for any time t_2 between t_1 and t_3 there must be objects whose activity at t_2 constitutes or results from that life (1990, 149). This criterion – spatiotemporal and material continuity – seems prima facie plausible. In many cases applying the criterion would give us the right results. However, van Inwagen admits that there are cases that can be taken to be counterexamples to this account of the identity of a life over time. Cell division and embryonic growth raise the question of when we actually have a case of continuity (van Inwagen 1990, 149). Furthermore, metamorphosis (particularly in invertebrates) suggests that two numerically distinct lives may be continuous with each other in a way that respects this kind of continuity (van Inwagen 1990, 150)[19]. He also thinks that the criterion would lead us astray in the case of Siamese twins, since it would be wrong to judge (according to the principle) that two Siamese twins who are superficially joined compose a single organism (1990, 156).[20] Thus van Inwagen admits that although this continuity criterion will not lead us astray in most cases, in some cases it might (van Inwagen 1990, 155-156). For this reason, we should not conclude that this continuity criterion provides necessary and jointly sufficient conditions for organism persistence.

[19] Of course, one may argue that the criterion shows the two lives are not distinct.
[20] It is curious that here, van Inwagen simply argues that this criterion leads us astray, whereas elsewhere (1990, 89) he argues that Siamese twins do not share a life.

Van Inwagen has a further suggestion from which we may extract the necessary (and sufficient) condition for the identity of L1 and L2. This is a suggestion that will play a substantive role in Olson's account of human persistence. Van Inwagen stresses that a life is a self- directing, self-maintaining event. It is an event that controls itself, is autonomous. It is therefore relatively easy to see why he thinks that the organ of maintenance – the controller of a life – should figure in a criterion of sameness of life over time. It is clear that he takes this to be a criterion for sameness of life from the following illustration. He asks us to imagine a creature, Cerebrus, with two brains that are both capable of thought, and one center that controls the homeodynamic processes that keep the organism together (van Inwagen 1990, 191). Van Inwagen argues that these are not two entities sharing most of their parts, but one single being capable of simultaneous thoughts. This conclusion follows from this creature's having one control center of its biological functions. If we were to take this as a criterion for the persistence of a life, it would be as follows: A life L1 is identical to a life L2 iff the controller of life L1 is identical to the controller of life L2.

There are two problems with this suggestion. First, the suggestion may be inconsistent with *Jealousy*. Van Inwagen admits that it is logically possible for one animal to have two organs of maintenance that perform (almost) identical functions (van Inwagen 1990, 202-205). The example he considers involves a case of fission, in which Neocerebrus – an organism with two organs of maintenance that perform (almost) identical functions – undergoes fission, so that each of the resulting two organisms have one of Neocerebrus's organs of maintenance. At this point, he argues, Neocerebrus ceases to exist and two new organisms come into existence. The fact that

van Inwagen seems to not have a problem with treating Neocerebrus as one entity suggests that van Inwagen thinks that *Jealousy* trumps the controller/organ of maintenance condition. If *Jealousy* did not trump the controller/organ of maintenance condition, he would have to say that before the fission there are two organisms that almost completely overlap, each of which is controlled by one of the organs of maintenance. After the fission, both organisms survive in non-overlapping locations. Van Inwagen's discussion of the case clearly suggests that *Jealousy* is a better way to individuate organisms than their controller/organ of maintenance.

The second problem with van Inwagen's suggestion is that it seems that the reality of lives (on which the reality of organisms depends) depends on the existence of parts of organisms, like organs of maintenance.[21] But according to van Inwagen organs are not simples, nor do they have a life. Therefore, they do not really exist. It seems, then, that on this theory the existence of an organism depends on the existence of something that does not exist. Van Inwagen may respond that his account is compatible with the claim that the life of an organism depends on the activity of "these-simples-arranged-organ-of-maintenance-wise". These simples do not have to compose anything, but their activity – even if alone is insufficient for the constitution of a life – is what the life of that organism depends on. The problem with such a suggestion, however, is that while it solves the problem of the criteria of organism existence, it does not solve the problem of organism persistence. It seems that in order to account for the persistence of a life in terms of the persistence of the organ of maintenance of that life, one must have an account of the persistence of the organ of maintenance. But since the organ of maintenance does not really exist according to van Inwagen's theory, it is impossible to

[21] I thank Simon Evnine for pointing out this problem to me.

give an account of its persistence. An account of its persistence that would not rely on the existence of the organ of maintenance would have to refer to the specific set of particles that virtually compose that organ. Presumably, however, the particles that virtually compose the organ of maintenance at t_1 and the particles that virtually compose the organ of maintenance at t_2 are not identical.

Van Inwagen might be able to give some persistence story for the brainstem in terms of continuity and joint functioning, or history of maintenance (as he does for the criteria of identity for artifacts), e.g. in terms of the activity or biological goings on in the region that maintain the organism's life. [22] I will examine whether or not this strategy succeeds as a way of accounting for the identity of a life over time in the next section. If the assessment of the next section is correct, then even if we can account for the identity of the (virtual) brainstem over time, or the goings on in the regions that controls the organism's vital functions over time, we cannot use this account to specify the conditions for the persistence of a life (of an organism) over time.

Thus van Inwagen is more plausibly successful in giving us a characterization (and criteria) of what a life at a time is, rather than over time. His characterization of a life, can help us distinguish living from non-living entities[23]: living entities are those that are composed of objects whose activity constitutes a life. And a life is a jealous event that is self-directing and self-maintaining. We also know how we *normally* individuate lives at different times: they need to be causally and spatio-temporally continuous. However, this account runs short of providing necessary and sufficient

[22] I thank Amie Thomasson for this suggestion.
[23] According to van Inwagen's theory composite objects can only be living things. But this is a complication that is irrelevant in this context. His account of life and living things is consistent with an account on which there are also inanimate composite objects.

conditions for the identity of a life *over* time. It therefore also does not provide the persistence conditions of organisms. Given both the Pluralist View of biological individuality and the Tripartite View, this is to be expected. Thus the failure to provide such persistence conditions should not count against van Inwagen's account.

In the next section I will discuss Olson's account of human persistence. We will see that Olson draws on van Inwagen's suggestions to construct an account of human persistence. I will argue against his account of persistence and show why it fails at providing necessary and sufficient conditions of human persistence.

1.2. Olson

An Exposition and Reconstruction of Olson's View

Although Olson claims that it is ultimately the business of biologists to tell us what organisms are because it is roughly the same project as explaining the nature of life, he thinks that there are a few "life-giving" features that distinguish organisms from non-organisms (1997, 130). These features are metabolism, teleology and organized complexity (1997, 130). An organism can retain its characteristics and structure despite changes in matter and energy with its surroundings. In other words, it has a metabolism (Olson 1997, 127). It has a teleology in that it "adjusts its activities to take advantage of the changing structures in its surroundings" (Olson 1997, 128) and its parts are connected together in such a way that each part has a role to play "in enabling the organism to

achieve its ends - survival and reproduction" (Olson 997, 128).[24] And this goal-directedness of living beings is "grounded in an underlying biochemical structure of unimaginable complexity" (Olson 1997, 128).

The above characteristics only tell us what an organism is, not what changes it can undergo. Olson's account is supposed to offer persistence criteria for individual organisms. We will see that the key to organism persistence according to Olson is life: an organism must remain alive to persist. Olson does not explicitly define life in terms of necessary and sufficient conditions, but one can glean what he would consider an appropriate characterization from his various scattered remarks on life. A life is a self-directing biological event that is well-individuated (Olson 1997, 136). Furthermore, Olson thinks that a particle cannot participate in two lives at once, unless one of the lives is subordinated to the other (Olson 1997, 137).[25] Since life is a jealous event "an organism cannot be animated by two lives, at least not at once" (Olson 1997, 137).[26] What Olson seems to mean is that the existence of a life rules out the existence of an overlapping life. I will henceforth refer to this characteristic as *Jealousy* (we have seen the principle above, in the van Inwagen discussion). We can generalize this thought beyond life to a thing of any kind - an object kind or an event kind - by giving the following definition of jealousy:

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[24] Reproduction is an element of the account that I will ignore since Olson would agree that an individual organism could survive without the ability to reproduce.

[25] "Like an army or a totalitarian state, a life imposes 'total obedience' upon the materials whose activities constitute it. When a life draws a molecule into itself, it breaks that molecule into smaller pieces and reassembles them according to its needs. After extracting such chemical energy from them as it can, it expels their remains in a less ordered form. Thus, a particle cannot participate in two lives at once, any more than one can serve in two armies at once; and two lives cannot overlap. Unless, that is, one of the lives is subordinate to the other." (Olson 1997, 137) Here Olson is essentially subscribing to van Inwagen's characterization of lives and jealousy (see van Inwagen 1990, 89-91).

[26] This formulation suggests that an organism could be animated by two lives at two distinct times. This would go against the criterion that sameness of life is both necessary and sufficient for sameness of the organism over time. And as I will show, it seems clear that Olson means to embrace this criterion.

> *Jealousy*: Kind K is jealous iff (if the activity of the xs constitutes an instance of K, k1, at t, then the activity of no ys that overlap the xs can constitute another instance of K, k2, at t, unless one of k1 and k2 is subordinate to the other at t).[27]

While Olson does not put it in these terms, this formulation seems close enough to what he has in mind and does not assume that the only thing that can be jealous is a life. However, one may object that conjoined-twins are a counter-example to *Jealousy*. We can therefore introduce a weaker, more permissive, version of jealousy that is still close to the spirit of Olson's suggestion, by allowing for some overlap, as long as it is not significant (of course, what counts as significant is an open question):

> *Weak Jealousy*: Kind K is jealous iff (if the activity of the xs constitutes an instance of K, k1, at t, then the activity of no ys that largely overlap the xs can constitute another instance of K, k2, at t, unless one of k1 and k2 is subordinate to the other at t).[28]

We should expect a life to at least satisfy *Weak Jealousy*, i.e. to not greatly[29] overlap with another life.

According to Olson, the criterion of organism persistence is biological continuity: "What it takes for us to persist through time is what I have called *biological continuity*:

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[27] Van Inwagen first referred to this characterization of a life as jealousy. See van Inwagen (1990, 89-90).
[28] What van Inwagen would think about this is unclear: he claims that although it may seem as if the fusion of two lives allows for two lives to overlap without one being subordinate to the other, it in fact only shows "that it is possible for the vague haloes of influence that surround lives to overlap" (van Inwagen 1990, 89).
[29] Of course, "greatly" and "largely" are vague terms. For the purpose of the paper it does not matter what exactly counts as a large subplurality of the xs or as great overlap.

one survives just in case one's purely animal functions—metabolism, the capacity to breathe and circulate one's blood, and the like—continue" (Olson 1997, 16 emphasis in the original). In other words, we are human animals and we, i.e. human animals, persist just in case our biological life continues. An animal persists just in case its capacity to direct the vital functions that keep it biologically alive is not disrupted (Olson 1997, 135). Olson does not specify what he means by disruption, but he does state that an animal dies and ceases to exist once "the event that maintains its internal structure stops and cannot be restarted" (Olson 2007, 29).[30] He further clarifies that a life is an event that contrasts with its surroundings. As such, it has natural boundaries: for example the activities of the particles of one's upper half, i.e. the torso, the arms and the head, may constitute a biological event that is akin to a life, but since the boundary is arbitrary rather than natural, this activity is not a life (Olson 1997, 138). One's upper and lower half would have to be contained in the space marked by *natural* boundaries.

We can extract the following characterization of a life from the above discussion:

(*Life Principle*) x is a life iff x is a jealous, self-directing, self-organizing, non-intermittent biological event with a metabolism and a natural boundary.

According to Olson, the objects whose activity constitutes its life compose the organism (Olson 1997, 138). Given his account of life and the relation of life to the organism one should accept the following criterion of the identity of organisms: "For any organism x

[30] Van Inwagen thinks that a sufficient degree of disruption of life requires more than the life slowing down or freezing. For instance, he claims that it is not clear that the life of a cat ceases when the cat is frozen (van Inwagen 1990, 146). He does think, however, that if the organ of maintenance (the brainstem in the case of the human animal) is destroyed the life of the organism ceases (this would be a clear case in which life is sufficiently disrupted). It should be clear that neither Olson nor van Inwagen is committed to there being a single moment at which the life stops. The point where a life stops can be vague.

and any y, x=y iff x's life is y's life" (Olson 1997, 138). This is also meant to be the criterion of organism identity *over* time. Thus the following captures the condition under which organisms persist: for any organism x at t_1 and any y at t_2, x=y iff x's life at t_1 is y's life at t_2.[31] In other words:

> (*Life*): Life L1 at t_1 is identical to life L2 at t_2 ≡ Organism O1 animated by L1 at t_1 is identical to Organism O2 animated by L2 at t_2.

For this criterion to be useful for the present purposes, however, we need to know under what conditions a human animal's life persists, i.e. what it is for a life L1 to be identical to a life L2. And indeed, Olson offers a way to determine whether or not a life at t_1 is the same as a life at t_2, at least for organisms that have a brainstem or an organ of maintenance that controls their life. This criterion does not involve reference to the animal itself. Instead, it specifies the persistence conditions of a life in terms of the brainstem controlling that life. Olson thinks that the brainstem is "essential to you, for without it there is no…life and no living organism at all" (Olson 1997, 140). I will shortly argue that by "essential" Olson means that the brainstem is not just necessary but also sufficient for the persistence of an animal's life and thus for the persistence of a human animal. The basic idea that underlies the view is the following. The brainstem controls the life of the human organism. If the controller of a life – the brainstem in the human animal case – ceases to function, then that life is disrupted. Once the biological life of the

[31] That he intends this to be the condition of organism identity over time is clear from his discussion of how we may reidentify lives at different times to reidentify organisms at different times and that it is not necessary to first identify and reidentify the organism in order to identify and reidentify lives (Olson 1997, 139-140).

organism is disrupted, the organism ceases to exist. Furthermore, as long as the controller of a life continues to function, that life persists and the animal survives. These ideas assume that the following principle is true:

> (*Conditional*): If an x controls the life of an organism, the persistence of that x is necessary and sufficient for the persistence of that life.

The brainstem is the controller of the human animal's life (it is the thing that controls the activity of the particles, which is a self-organizing and self-propagating activity). Therefore, the following principle is also true. This principle only applies to organisms that have a brainstem as a control center:[32]

> (*Control*): Brainstem Brainy1 that controls life L1 at t_1 is identical to brainstem Brainy2 that controls life L2 at $t_2 \equiv$ L1 (controlled by a brainstem) at t_1 is identical to L2 (controlled by a brainstem) at t_2.

Thus according to Olson the persistence condition of human animals is given in terms of lives, and the persistence condition of lives of human animals is in turn given in terms of brainstems. One may argue that while the persistence of the brainstem is sufficient for the persistence of a life, it is not necessary for it. There might be a way to sustain the life through a brainstem change. This would be a charitable reading of Olson

[32] This is how the principle should be understood throughout the paper. The principle can also be modified to accommodate organisms with a control center that is not a brainstem (by replacing "brainstem" with "controller").

and as I will shortly show, it seems consistent with parts of his discussion. However, I will argue that Olson's commitment to the sufficiency claim also commits him to the necessity claim: if the brainstem is sufficient for the persistence of a life and an organism, then it is also necessary. In other words, he is committed to (*Control*). Thus Olson is committed to the claim that if the brainstem at t_1, call it Brainy1, and the brainstem at t_2, Brainy2, are not identical, then the life of the organism controlled by Brainy1 and the life of the organism controlled by Brainy2 are not identical. And he is committed to that claim that if Brainy1 is identical to Brainy2, then the life of the organism at t_1 is identical to the life of the organism at t_2.

(*Control*) and (*Life*) jointly entail the following:

> (*Brainstem Condition*): The brainstem Brainy1 that controls L1 at t_1 is identical to the brainstem Brainy2 that controls L2 at $t_2 \equiv$ Organism O1 at t_1 (animated by L1) is identical to Organism O2 at t_2 (animated by L2).

(*Brainstem Condition*) consists of a necessity and a sufficiency claim. Olson is committed to both. First, he is clearly committed to the sufficiency claim.[33] Olson argues that if an animal is pared down to its head it would thereby survive (at least for a certain time), albeit in a very debilitated form. Given his other commitments, this claim also commits him to the claim that a bare brainstem is a severely debilitated animal. For Olson makes it his point to distinguish between a cerebrum transplant and a whole brain transplant (1997, 45). One of the differences between the two kinds of scenarios is that

[33] My reading of Olson's commitments regarding the brainstem differs from Belshaw's interpretation (2011). Belshaw thinks Olson is clearly committed to the necessity claim but not to the sufficiency claim. I think Olson is clearly committed to the sufficiency claim and that he implicitly commits himself to the necessity claim.

cerebrum transplant cases support the psychological view of personal identity while whole-brain transplant cases are neutral between it and the biological view. The reason is that in the latter case the brainstem – the controller of the life of the animal – is also transplanted: "the 'control center' of one's autonomic nervous system goes along with the brain in the whole-brain transplant. That is why some think that the entire human organism would get pared down to a naked brain in that case" (1997, 45). This is also the reason that Olson cites to explain why someone's detached head is a "debilitated but living animal" whereas the body left behind without the head is not a living animal (1997, 133). Since the presence of the living brainstem is the difference that makes a difference, it is a safe assumption that paring down a human animal to its brainstem would have similar results. Thus Olson seems to agree with van Inwagen that "the thing the surgeons removed from your head would not be a mere organ, like a heart or a liver, but instead a radically mutilated but (for the time being at least) living human animal" (1997, 45). And since psychology does not matter for the persistence of human animals, the same conclusion would be reached if a human animal would be pared down to the brainstem. The reasoning behind this view entails that the human animal would go where its brainstem goes. If you transplant a cerebrum from one animal with a functioning brainstem to another animal with a functioning brainstem, you have not changed the location of either animal (Olson 1997, 116). And no organ transplantation destroys the animal as long as its brainstem remains intact.[34]

[34] The preceding considerations for the sufficiency claim would also be endorsed by van Inwagen, though he has an additional emphasis on composition. According to him the particles arranged headless-body-wise would not compose anything, thus the human animal would not survive brainstem removal (and destruction), even if kept on life support. But a severed head (the important element being the brainstem - the center of maintenance of life) kept on life support would be the same animal as the animal it was severed from. See van Inwagen (1990, 177-181).

Olson does not directly commit himself to the necessity clause of (*Brainstem Condition*). According to Olson "one survives just in case one's purely animal functions – metabolism, the capacity to breathe and circulate one's blood, and the like – continue" (1997, 16). Elsewhere he states that "an animal, or any organism, persists just in case its *capacity* to direct those vital functions that keep it biologically alive is not disrupted" (Olson 1997, 135 my emphasis).[35] These passages teach us that on Olson's view, the *capacity* to direct the vital functions – and not just the vital functions themselves – needs to be intact throughout an organism's life for the organism to persist through time.[36] This explains why, according to Olson, an instantaneous replacement of one brainstem with another brainstem counts as replacing one animal with another (Olson 1997, 140-141). For in such a case, for a brief instant, the capacity to direct the vital functions is disrupted. One might therefore think that if the capacity to direct the vital functions of an animal remains intact, the animal can survive the replacement of a brainstem. However, the second case Olson considers suggests that he does not accept this, at least not without further qualifications. The second case he considers involves the gradual replacement of the brainstem with an inorganic brainstem. He claims that this replacement does not amount to the survival of the human animal: the resulting being would not even be an animal, because not only does it have a different brainstem, it is an also inorganic one (Olson 1997, 141-142). Since it would not be an animal, a fortiori it would not be the *same* human animal. We can therefore see that Olson thinks that for the brainstem to

[35] Olson claims that we can make this into a general account of the identity of animals along the following lines: "if x is an animal at t and y exists at t*, x=y iff the vital functions that y has at t t* are causally continuous in the appropriate way with those that x has at t" (1997, 135). The two formulations are slightly different. Presumably, however, the capacity to direct the vital functions is included in the appropriate causal continuity mentioned in this formulation.

[36] Belshaw (2011) reads Olson as being committed to the necessity claim and he then argues that Olson must also be committed to the sufficiency claim. The view Belshaw attributes to Olson is less defensible than the way I interpret Olson (namely, as first being committed to the sufficiency claim).

persist over time, it cannot become inorganic, however gradually. Curiously, Olson does not discuss the possibility of replacing the brainstem with an organic surrogate in such a way that the animal's life is not disrupted. But we can still draw two inferences from the previous scenarios. First, Olson thinks that the brainstem itself cannot survive a gradual replacement of its parts with inorganic parts.[37] Second, the capacity to direct the vital functions of the animal must be continuous for the animal to survive. Is there anything to suggest that he views the numerical identity of the brainstem as not only sufficient but also necessary for the persistence of the human animal? I believe there is. The following thought experiment should compel Olson to accept the claim: if an Organism O1 at t_1 (animated by L1) is identical to Organism O2 at t_2 (animated by L2), then the brainstem Brainy1 that controls L1 at t_1 is identical to the brainstem Brainy2 that controls L2 at t_2.

Take the sufficiency claim that Olson is committed to: if the brainstem Brainy1 that controls L1 at t_1 is identical to the brainstem Brainy2 that controls L2 at t_2, then Animal A1 at t_1 (animated by L1) is identical to Animal A2 at t_2 (animated by L2). This means that if we take out a functioning brainstem and put it on life support – say a vat – the animal survives, albeit in a very mutilated form. We can use this admission to introduce a non-symmetric fission case.[38] At t_1 we have the fully functioning brainstem, Brainy1, in a human animal, Ori. At t_2, Ori receives another brainstem, Brainy2, which fully controls its life functions along with Brainy1. We can suppose the life functions are overdetermined by two brainstems. Note that as it stands, the description is neutral with

[37] Of course, this leaves the following questions open: why can the brainstem not have its parts gradually replaced with organic parts? And what would happen if we replaced its organic part with organic material such as, e.g., ape material? (I thank Berit Brogaard for pushing me to be clearer about this point)

[38] Other fission cases that pose a problem for animalism include conjoined twins. This is a problem for animalism in general, but here I am concerned with animal persistence and not with whether or not we are animals. For this reason, the fission case I shall introduce also won't make reference to higher cognitive capacities.

respect to the persistence facts. It doesn't matter what happens at t_2, e.g. whether there is only one animal in that region or two overlapping animals controlled by two brainstems. We can instead focus on what happens at t_3: at t_3 Brainy1 is removed and put into a life-supporting vat, but the remaining animal, call it Ori-minus, survives because at no point does the capacity to direct its life stop, since it still has Brainy2. The problem for Olson is as follows. The sufficiency claim commits him to saying that the original animal, Ori, goes where the original brainstem goes. Therefore, if a brainstem is removed from an animal, the original animal goes with the brainstem. In this case, the original animal goes with Brainy1. But what happens in the current case? There are three options before Olson. I will argue that the first option, which commits him to the necessity claim, is the most feasible one.

First, Olson might argue that since the sufficiency claim commits him to saying that the animal goes with the original functioning brainstem, at t_3 the original animal, Ori, is no longer located where Ori-minus is located. Suppose, however, that Olson *rejects* the necessity claim. This means it is possible that Ori is Ori-minus, because it is possible for a human organism to persist through brainstem change. But in this case at t_3 the original animal (Ori) would be located both where the original brainstem is (given that Ori goes where the brainstem goes), and where Ori-minus is located (because Ori can persist through brainstem change). Unless Olson thinks that it is possible for one animal to be located at two places at the same time, he should accept the necessity claim, which would rule out this possibility. If the necessity claim is true, then if Brainy1 does not persist, neither does the animal. In this case, Ori-minus at t_3 is not identical to Ori at t_3 because it no longer has Brainy1. Thus if the necessity claim is true, Olson does not have to answer

the worry that Ori is located at two places at the same time, both as Ori's original brainstem and as Ori-minus. Accepting the necessity claim along with the sufficiency claim would allow Olson to avoid the claim that Ori is located at two disjoint places at once. There are two more options that are available to Olson, and below I will argue that they are unfeasible.[39]

Second, Olson might claim that we should adopt the following persistence conditions. If Brainy1 is not replaced by Brainy2 and there is no living Ori-minus left behind, then the animal goes where the brainstem goes. But if prior to the removal of Brainy1 the animal receives an additional brainstem that together with Brainy1 controls its vital functions, it does not necessarily go where Brainy1 goes but instead stays with whatever brainstem remains attached to the animal and controls the original body parts of the animal. More generally, according to this view x at t_1 can persist as a bare brainstem at t_2, but only if there is no better candidate at t_2 for being x. Moreover, if any y shares a brainstem with x and is connected to it in the right way (casually, spatiotemporally, or what have you), y is a better candidate for being x than a bare brainstem. This is the case even if the brainstem y shares with x is not the brainstem that x originally started out with. This view amounts to a rejection of the necessity claim: it is possible for an animal to have numerically distinct brainstems over time. One could argue that this second option would allow Olson to keep a *qualified* version of the sufficiency claim: if the brainstem Brainy1 that controls L1 at t_1 is identical to the brainstem Brainy2 that controls L2 at t_2, then Organism O1 at t_1 (animated by L1) is identical to Organism O2 at t_2

[39] One could object that perhaps Olson does not have to be responsive to cases that may be physically impossible. However, given that Olson thinks that paring down an animal t its brainstem would result in a severely mutilated animal, he seems to depart from cases that are (currently) possible. (I thanks Amie Thomasson for this objection)

(animated by L2), *ceteris paribus*. The ceteris paribus clause is added because under some circumstances, i.e. if Ori-minus-Brainy1 is continuously alive and is connected to Ori at t_1 in the right way, the claim is not true.

There are two problems with this suggestion. To begin with, the ceteris paribus clause might give too much leeway to those who reject the sufficiency claim in the first place. An opponent of the sufficiency claim might argue that the ceteris paribus clause entails that the persistence of the brainstem is not a necessary and sufficient condition for the persistence of a single life. This opponent would argue that the reason Ori-minus persists despite a change in its brainstem is that its life continues. But in this case, the identity of a brainstem over time comes apart from the persistence of a life over time and is thus neither necessary nor sufficient for the persistence of a life. Furthermore, the persistence criteria offered by this second option do not merely push Olson's view towards a closest continuer account of human persistence, but make the persistence conditions highly disjunctive. Closest continuer theories usually take the form of specifying the criterion of identity through time as a condition that in some sense admits of degree, e.g. psychological continuity and connectedness. Such theories may be motivated because they are attempts to reconcile the following intuitions: (i) the condition is sufficient for persistence; (ii) when both z and y have a good claim on the basis of the condition to be x, the one that satisfied the condition to a higher degree has the better claim to identity. Such a closest continuer theory results from allowing a property that is sufficient for identity to be gradeable. But the theory here is not a closest continuer theory. If it were, the problem with the criteria conditions offered by the second option would be benign, since any material theory about human beings that does not

avoid temporal parts can be pushed toward a closest continuer account of human persistence.[40] Rather, the second option offers a disjunctive persistence condition that takes an intuitively sufficient property for identity and in the face of counterexamples *disjoins* it with something else. This way of addressing counterexamples is ad-hoc in a way that familiar closest continuer theories are not.[41] For closest continuer theories of persistence are not the result of adding extra disjuncts to a persistence condition, but merely admit that the relation that determines survival can be gradeable (for instance: psychological continuity). By contrast, the present theory is the result of adding disjuncts to the persistence conditions themselves in order to avoid counterexamples.[42]

The third option available to Olson is to offer the following reading of the scenario: Ori does not survive. But this seems absurd. This means that at t_3, despite having two good candidates for being the original animal, and despite the life functions of both brainstems continuing, the original animal ceases to be. Moreover, this would also imply that the sufficiency condition does not hold. For despite the original brainstem remaining intact throughout the process, the animal ceases to exist. And given that division does not clearly disrupt the process of that life, Olson cannot say that Ori does

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[40] This is a point made by Zimmerman: "…any materialism concerning human beings that eschews temporal parts can be driven… toward a closest continuer account of human persistence conditions. Such materialists cannot avoid saying that, if there are two simultaneously existing and equally good candidates for being involved in the same Life as some earlier person; then the original person ceases to exist, her Life ends, and two new Lives begin. But if one of the two candidates had been completely absent (destroyed at the point of fission instead of being preserved alive), then the original Life would have continued and the original person would have persisted through the loss of half her brain" (1999, 201).

[41] Moreover, while Olson does not think that all disjunctive persistence conditions are bad, he does think that they are inappropriate for natural kind concepts that carve at the joints (2013, 92). 'Organism', according to Olson, is such a concept (2013, 92). And since he considers 'human animal' to be a "natural kind and therefore a substance concept" (1997, 121), he must also think that it is a joint-carving concept. Olson also argues that disjunctive persistence conditions would trivialize Wiggins's notion of substance sortal (1997, 81-85).

[42] Closest Continuer theories try to deal with a scenario in which there are two candidates for being identical with an object by claiming that when b and c are not equally closely R-related to a, the closest candidate wins. But in the present case R is sufficient when there is no fission, and when there is, it gets trumped by a different relation, R*.

not survive at all. Furthermore, this response also seems antithetical to the motivation for the brainstem view, namely that we can specify necessary and sufficient conditions for the persistence of an animal in terms of the persistence of its brainstem. It is also important to note that a symmetric fission case would be a problem for any theory of persistence. In such cases b and c stand in relation R to a, and R is thought to be sufficient for identity. Thus both b and c seem to be identical to a. But it seems implausible to treat the present case as a symmetric fission case, given that one candidate is a brainstem in a life-supporting vat and the other candidate is a fully functioning animal. The brainstem in a life-supporting vat presumably does not stand in the same relation to Ori as a fully functioning animal. One could find the view that Ori survives as Ori-minus plausible and one could also understand the view that Ori survives as the brainstem. But if a view entails that the two are equally good candidates for being Ori, we have a good reason to doubt that view.

All of these options seem to be implausible. At this point, one might want to simply reject (*Brainstem Condition*). However, if Olson is committed to the sufficiency claim, as it seems he is, this option is not open to him. For the only interpretation of the scenario that genuinely respects the sufficiency claim (brainstem persistence is sufficient for animal persistence) is the first reading. However, this reading also entails that the necessity claim (brainstem persistence is necessary for animal persistence) is true. On the other two interpretations of the scenario the sufficiency claim also has to go, along with the necessity claim. Thus a plausible view that respects the sufficiency claim should also accept the necessity claim. In what follows I will treat Olson's position as if he is also committed to the necessity claim. If the reader believes he is not committed to such a

claim, she should treat the following discussion as a discussion of Olson*, at least when it concerns the necessity clause of (*Brainstem Condition*).

As we have seen, Olson does not give an explicit argument for (*Brainstem Condition*). What follows is a charitable reconstruction of an argument that can be gleaned from various points scattered in Olson's discussion:[43]

(1) Life L1 at t_1 is identical to life L2 at t_2 ≡ Organism O1 animated by L1 at t_1 is identical to Organism O2 animated by L2 at t_2. (*Life)*

(2) There is a functioning brainstem B1 that controls the life of the human animal.

(3) If an x controls the life of an organism, the persistence of that x is necessary and sufficient for the persistence of that life. (*Conditional*)

(4) Therefore, brainstem B1 that controls life L1 at t_1 is identical to brainstem B2 that controls life L2 at t_2 ≡ L1 (controlled by a brainstem) at t_1 is identical to L2 (controlled by a brainstem) at t_2. (*Control*)

(5) Therefore (by transitivity from (*Life*) and (*Control*)), brainstem B1 that controls L1 at t_1 is identical to brainstem B2 that controls the life L2 at t_2 ≡ Organism O1 at t_1 (animated by L1, controlled by B1) is identical to Organism O2 at t_2 (animated by L2, controlled by B2). (*Brainstem Condition*)

[43] This is likely what underlies van Inwagen's emphasis on the organ of maintenance as a criterion for organism persistence (that is at least initially plausible). However, there are some important differences between their views. For instance, Olson's view emphasizes that we are human animals and that this is a substance sortal (1997, 36; 121), whereas this consideration does not play any role for van Inwagen. We will see that this emphasis might involve a further complication for Olson's view.

In the next section I will show that the argument (1)-(5) (henceforth *Brainstem Argument*) fails. I will do this by offering two more thought experiments. The first one attacks (*Control*), i.e. the idea that the persistence of a brainstem over time is necessary and sufficient for the persistence of a life over time. This thought experiment also undermines (*Conditional*), i.e. the idea that if x controls the life of an organism, the persistence of x over time is necessary and sufficient for the persistence of that life over time, since it presents a case in which the conditional's antecedent is true but its consequent is false. The second thought experiment shows that 'life' is ambiguous between at least two different notions. The disambiguation that renders (*Control*) initially plausible renders (*Life*), i.e. the idea that the identity of a life over time is necessary and sufficient for the identity of an organism over time, implausible. And the disambiguation that renders (*Life*) initially plausible renders (*Control*) implausible. If that is the case, there is an ambiguity involved in the inference that established (*Brainstem Condition*). On no disambiguation are all premises of the argument true, so the argument is unsound.

Thought Experiment 1: The Story of Stemmies

Suppose a brilliant scientist wants to replace a human's brainstem. In order to keep the human alive, she transplants a second brainstem, Stemmy2, into the human while keeping the first brainstem, Stemmy1, functioning. At time t_1 there is only one brainstem, Stemmy1, which controls the vital functions of the animal. Stemmy2 comes to replace the first brainstem by gradually taking over the human's vital functions, which at time t_2 are overdetermined by two brainstems. At t_3 Stemmy1 no longer functions (and

cannot be reanimated) and the body that was originally controlled by Stemmy1 is now controlled by Stemmy2, which gradually came to replace Stemmy1.[44]

The thought experiment will shed light on the following problems, which I will discuss in detail in the following paragraphs. First, the first stage of the thought experiment (taking place at t_2) will show an inconsistency in Olson's account: (*Control*) and *Jealousy* are incompatible.[45] If they are, Olson needs to choose between them. If he chooses *Jealousy*, then the controller of a life and the life it controls can come apart. If that is the case, then (*Conditional*) is false because in some cases its antecedent is true, i.e. brainstem B1 controls the life of an organism at t_1, but its consequent is false, i.e. the persistence of B1 is not necessary and sufficient for the persistence of that life. If (*Conditional*) is false, the argument for (*Control*) collapses. Second, I will introduce a revised (*Brainstem Condition*) and show that it, too, cannot escape this criticism. Third, the last stage of the thought experiment (taking place at t_3) will show that the life of an organism and the brainstem that controls that life can indeed come apart. This will undermine (*Control*) not by way of pointing to the incompatibility between it and *Jealousy*, but by directly showing that we would have no good reason to believe it even if it were consistent with *Jealousy*. I will now go over these points in due order.

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[44] This thought experiment is not wilder than Olson's or van Inwagen's thought experiments. Belshaw (2011) also mentions such a possibility but does not discuss it in depth and only points to the result of the thought experiment at t_3. Importantly, he does not see the significance of, in his words, "the animal [being] doubly supported" by two brainstems. First, his formulation suggests that he simply assumes there is only one animal there at t_2. Second, he never discusses the notion of the jealousy of life and so does not consider the significance of what is happening at t_2.

[45] Thus I show not only that the identity of the brainstem over time is not necessary or sufficient for the identity of a life over time, but that (*Control*), which gives us the criterion for the persistence of a life, can even be made incompatible with one of the basic characteristics of a life, namely jealousy. *Weak Jealousy* is arguably of no help here because this is a case in which the overlap is so great that the only non-overlapping parts are the controllers.

The thought experiment uses the claim that any biological organism can only have one life at a time to show that a human animal's having the same brainstem and a human animal's having the same life can come apart. (*Control*) concerns the relation between brainstems and lives, and as such is detachable from worries about overlapping animals. This scenario poses the following problem for Olson's view. At t_2 there are two brainstems that control the vital functions of the same particles-arranged-animal-wise.[46] Olson, however, must claim that at t_2 there are two lives in that region of space. For according to (*Conditional*) if a brainstem B1 controls life L1 and B2 controls life L2, then the identity of B1 at t_1 and B2 at t_2 is necessary and sufficient for the identity of the life L1 at t_1 and L2 at t_2. One of the brainstems that controls the life at t_2 in the thought experiment is the same as the brainstem that controls it at t_1, namely Stemmy1. However, at t_2 a second brainstem is introduced. Stemmy2 did not control L1 at t_1. Therefore, Olson must claim that transplanting a second brainstem into the original animal multiplies the life at t_2. In other words, at t_2 there is a life that is identical to L1, and a second life controlled by Stemmy2, which is distinct from L1.

The activity of the particles, call them the xs, constitutes life L1 at t_2, and the activity of the ys, which largely overlap the xs, constitutes another life L2 at t_2. Thus at t_2 two lives_significantly overlap. However, this substantial overlap contradicts not only *Jealousy*, which rules out any kind of overlap, but also *Weak Jealousy*, according to which Kind K is jealous iff (if the activity of the xs constitutes an instance of K, k1, at t,

[46] I am using the expression "particles-arranged-animal-wise" because it is metaphysically neutral n the sense that it does not in itself reveal how many animals are present in that region. If I used the term "organism" in the singular here, but Olson did not reject (*Control*) he would have to claim that there are in fact two organism at t2, which share most of their particles.

then the activity of no ys that largely overlap the xs can constitute another instance of K, k2, at t, unless one of k1 and k2 is subordinate to the other at t).

If Olson wishes to respect *Weak Jealousy*, he must admit that at t_2 the xs and the ys in fact only partake in one life. Otherwise, Olson must claim that most of the particles in that region of space belong to two lives at exactly the same time without one being subordinate to the other. Thus if Olson wishes to respect *Weak Jealousy* he cannot maintain (*Control)* as the criterion of identity of a life over time. If, on the other hand, Olson wishes to accept (*Control*), then given that there are two brainstems at t_2, he has to say that there are two lives at t_2 constituted by the activity of largely overlapping particles.[47] Either (*Control*) or *Weak Jealousy* has to go and Olson must choose between them. Call this *Dilemma*. Obviously enough, there are two ways out of *Dilemma.* If Olson thinks that *Weak Jealousy* is more important than (*Control)*, then he has to say that at t_2 there is one life overdetermined by two brainstems. Since he also endorses (*Life*), then he must claim that there is one human animal at t_2. However, if he thinks that (*Control)* is more important, he must give up the view that life is necessarily a jealous event and admit that there are two lives at t_2 in the present scenario. The human animal at t_1 was animated by life L1, which was controlled by Stemmy1. At t_2, before the transplantation of Stemmy2 into that animal, Stemmy2 was a radically mutilated animal. So the life L2 controlled by Stemmy2 is not identical to the life L1 controlled by Stemmy1. Thus at t_2 there are two distinct animals with two distinct lives. Therefore, at t_2 there are two human animals.

[47] This might also allow Olson to claim that the case here is not one of overdetermination: there are two lives – not one – controlled by two brainstems at t_2.

One might think that another complication arises from the grammar of (1)-(5). The argument uses the definite description 'the brainstem that controls L1'. This is problematic either for the thought experiment or for the formulation of Olson's argument. For, as I have already mentioned, the grammar of (*Brainstem Condition*) rules out animals with more than one brainstem at a time. Either the thought experiment does not get off the ground, or the argument should be revised. I think that the thought experiment is not implausible.[48] We might therefore want to revise (*Brainstem Condition*). One might suggest the following revised condition:

(*Brainstem Condition**) There is a brainstem B such that B controls both the life L1 of Animal A1 at t_1 and the life L2 of Animal A2 at t_2 ≡ Animal A1 at t_1 (animated by L1) is identical to Animal A2 at t_2 (animated by L2).

This condition allows for an animal to have more than one brainstem at a time. However, this condition is inconsistent with the transitivity of identity. Consider the present thought experiment. At t_1 Animal has brainstem Stemmy1, at t_2 it receives another brainstem, Stemmy2. According to the criterion Animal is not multiplied because it receives another brainstem. At t_3 Stemmy1 is destroyed and Animal remains with Stemmy2. The criterion entails that Animal at t_1 is identical to the animal at t_2 because they share a brainstem. For the same reason the animal at t_2 is identical to the animal at t_3. We should then expect that Animal at t_1 is also identical to the animal at t_3 because identity is transitive. However,

[48] Van Inwagen himself mentions it as a possibility (1990, 202-212). Zimmerman also discusses a similar thought experiment (modifying van Inwagen's original scenario), though for a different purpose (1999).

Animal at t_1 and the animal at t_3 do not share a brainstem. Therefore, they cannot be identical.

We can remedy the aforementioned problem with the following fix:

(*Revised Brainstem Condition*) Animal A1 at t_1 (animated by L1) is identical to Animal An at t_n (animated by Ln) ≡

∃x (x is a brainstem that controls both L1 of A1 at t_1 and L2 of A2 at t_2)

∃y (y is a brainstem that controls both L2 of A2 at t_2 and L3 of A3 at t_3)

...

∃z (z is a brainstem that controls both Ln-1 of An-1 at t_{n-1} and Ln of An at t_n)

This criterion preserves the transitivity of identity. It also allows an animal to have more than one brainstem at a time. However, this criterion does not help Olson against the concern raised by *Dilemma.* To see why imagine that Stemmy2 previously belonged to another human animal, Animal2. According to the view proposed by Olson, an animal pared down to its brainstem is a severely mutilated human animal. Thus at no point did Stemmy2 cease to be Animal2. Allowing that an animal can have two brainstems at a time is of no help to Olson here. For if he claimed that there is only one animal at t_2, he would also have to say that Stemmy2 ceased to exist - despite being a living (albeit mutilated) animal - as soon as it was transplanted into Animal: something can cease to exist by coming to be surrounded by sustaining tissues.[49]

[49] This violates the destruction principle, which Olson finds attractive: "you cannot destroy a person merely by surrounding him with sustaining tissues" (Olson forthcoming a, section 3). The same problem applies here to animals rather than to persons.

It seems, then, that even the most charitable revision of (*Brainstem Condition*) entails that there are two largely overlapping animals at t_2 in this scenario; one controlled by Stemmy1 and the other controlled by Stemmy2. This means that two organisms share a cerebrum and therefore their entire stream of consciousness. Olson may not think that this is such a bad consequence, for he thinks that two organisms can share a brain and that therefore two people can share thoughts.[50] However, his discussion of conjoined twins only requires him to give up *Jealousy*. The current scenario would also force Olson to give up *Weak Jealousy* if he favors (*Control*). For this is a case in which the two animals share all their parts apart from their brainstems.

According to the third step in our thought experiment at t_3 only Stemmy2 survives. Therefore, at t_3 we know that there is only one life and thus one animal in that region. The life of the organism at t_3 is not controlled by Stemmy1. If (*Control*) is true, the life at t_3, L2, is distinct from L1. If that is the case, then by (*Life*) it follows that the original animal does not survive and the animal at t_3 is a numerically distinct animal from the animal at t_1.

If we take into consideration what happens at t_3, we have a reason to reject (*Control*) that is independent from the incompatibility between (*Control*) and *Weak Jealousy*. Recall that according to (*Life Principle*) a life is a self-directing and non-intermittent event. When Stemmy2 was added to the organism whose life functions were thus far controlled by Stemmy1, the event (i.e. the life) in the region was not disrupted. Therefore, between t_1 and t_3 the life in the region was not disrupted. We have a positive reason to believe that there is no disruption of life in the present case, since the animal has the brainstems in temporally overlapping periods. Disruption would at least require

[50] See Olson, forthcoming b.

an instant t*, in which there is no capacity to sustain life. But then it seems that the claim that lives are self-directing events is compatible with the claim that lives can persist through a change of controllers: although Stemmy1 is not numerically identical to Stemmy2 at t_3, the event in the region was not disrupted.

The thought experiment shows that a life may be continuous without the controller of the life being the same over time. Furthermore, it shows another way of continuously having a brainstem that does not involve gradual part-by-part replacement of the original brainstem with an inorganic replacement. Namely, there can be a replacement of one brainstem for another with a temporal overlap, which ensures that there is no gap in the life. This scenario helps us draw some useful distinctions that are obscured by Olson's original scenario of gradually replacing the brainstem with an inorganic surrogate: for it allows us to see how a brainstem replacement is possible without rejecting Olson's requirement that the brainstem be organic. We can thus respect the intuition that a brainstem – just like any other part of the animal – should be organic in order to properly be integrated into the life of the animal. The only reason I can see for resisting my conclusion is antecedent commitment to (*Control*). But it seems to me that there is no independent reason to accept (*Control*), and the thought experiment I just presented provides ample reason to abandon it.

Complicating Matters: Another Life Principle

In this section I will introduce another characterization of a life, which can be extracted from additional comments that Olson makes (in places that do not directly

discuss the term). While the previous characterization of a life is concerned with what a life is, the new principle shifts the focus to the persistence conditions of a life. The discussion will show that the term 'life' which figures in (*Control*) and in (*Life*) is ambiguous. No disambiguation of the term supports all the premises at the same time. Specifically, on no disambiguation are both (*Control*) and (*Life*) plausible. (*Life Principle*) is at least prima facie plausible as a criterion for distinguishing living objects from non-living ones.[51] However, this criterion is only plausible for a synchronic account of life, that is, for what counts as a living thing at a time, rather than over time. While this may be the thought that makes (*Control*) seem plausible, it is clearly unacceptable as an interpretation of 'life' as it figures in (*Life*). I will first discuss the two disambiguations and then examine how they affect Olson's argument.

According to Olson, mere spatiotemporal continuity between an object O1 at t_1 and an object O2 at t_2 is not sufficient for O1 to be identical to O2 (1997, 150). He agrees with Wiggins that there is no such thing as spatiotemporal continuity in general, but only relative to a concept (Olson 1997, 151). For instance, suppose the cerebrum of an animal is transplanted into another animal, while the brainstem stays behind. Both the cerebrum and the brainstem are in some sense spatiotemporally continuous with the original animal. But since they cannot both be identical to it, we need to go beyond mere spatiotemporal continuity if we want to know their persistence conditions. In addition, we need to know under what substance concept the examined object falls in order to know what changes it can undergo (Olson 1997,151). O1 and O2 need to fall under the same

[51] The underlying thought seems to reflect a functional account of life. For an overview of different accounts of life, including the functional accounts, see Mark Bedau (2007).

substance concept to be identical. We can revise (*Life Principle*) to accommodate this idea:

> (*Revised Life Principle*): Life L1 at t_1 = Life L2 at t_2 iff L1 at t_1 and L2 at t_2 are jealous, self-directing, self-organizing, non-intermittent biological events with a metabolism and a natural boundary and are spatiotemporally continuous and their owners fall under the same substance sortal.[52]

(*Life Principle*) does not explicitly state that a life belongs to an organism, but one can argue that this claim is entailed by the definition, since a life always belongs to an object (which we normally take to be an organism). By comparison, (*Revised Life Principle*) places a further constraint on the identity of life over time: a life L1 at t_1 and a life L2 at t_2 cannot be identical unless they are spatiotemporally continuous and are owned by objects that fall under the same substance sortal.[53] How specific must that substance sortal be? Presumably, the organism O1 at t_1 and the organism O2 at t_2 must be not only of the same kingdom, e.g. Animalia, or class, e.g. Mammalia, or even family, e.g. Hominidae, but also of the same species, e.g. homo sapiens. The reason is that Olson thinks we are not just animals, but human animals and as such have the persistence

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[52] At one point van Inwagen also considers whether spatiotemporal continuity and "material continuity" (continuity of replacement) are jointly sufficient for the persistence of a life (van Inwagen 1990, 149). This criterion – spatiotemporal and material continuity – seems prima facie plausible. In many cases applying the criterion would give us the right results. However, he admits that there are counterexamples to this account of sameness of life over time. Cell division and embryonic growth "raise the question about when we actually *have* a case of Lockean [spatiotemporal and material] continuity" (van Inwagen 1990, 149). Furthermore, metamorphosis (particularly in invertebrates) suggests that two numerically distinct lives may be continuous with each other in a way that respects this kind of continuity (van Inwagen 1990, 150).

[53] The extent to which spatiotemporal continuity is important might be dictated by the substance sortal under which the object falls. For instance, the spatiotemporal continuity requirements for humans are presumably different from those of amoebas.

conditions of human animals.[54] A human cannot cease to be human without ceasing to exist.[55]

(*Revised Life Principle*) does not merely introduce a restriction to (*Life Principle*). It introduces a new characterization of a life, which applies to a life over time rather than at a time. One could argue, then, that this principle of life is likely to be more useful when determining the persistence of organisms.

Since (*Life*) specifically connects the notion of a life with the notion of the human animal, (*Revised Life Principle*) seems appropriate as the disambiguation of the notion of a life that figures in it. But (*Revised Life Principle*) cannot be the right disambiguation of the notion of a life that figures in (*Control*). (*Control*) tells us that sameness of the controller of an event is necessary and sufficient for sameness of the event over time. This criterion makes no reference to organisms or substance sortals. It is only meant to give us a way to identify an event over time. Thus (*Life Principle*) is the appropriate disambiguation of the term 'life' as it figures in (*Control*): if life is a self-sustaining, self-directing, non-intermittent metabolic event, it seems at least prima facie plausible that in order for event E1 at t_1 and event E2 at t_2 to be the same events, their controllers too need to be identical. As we have seen, the previous thought experiment should already make us skeptical of this claim, since it shows that a human animal's having the same brainstem and a human animal's having the same life can come apart. However, if there is some initial plausibility to (*Control*), then the notion of a life that figures in it is likely to be the

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[54] According to Olson "our substance concept – what we most fundamentally are – is not *person*, but *Homo sapiens* or *animal* or *living organism*" (1997, 30). Since Olson thinks that all three concepts are substance concepts, it seems that we should choose the narrowest one, namely Homo sapiens (after all, 'material object' is also a substance concept, but Olson would want to say more than that we are most fundamentally material objects).

[55] Olson thinks that "human animal is a natural kind and therefore a substance concept, and… any animal has the persistence conditions…it has by virtue of being an animal, or by virtue of being an animal of a particular biological species, such as a human animal" (1997, 121). For further similar claims see Olson (1997, 28; 36; 72).

one that occurs in (*Life Principle*). In the next section I will present another thought experiment. I will then examine it according to (*Life Principle*) and then according to (*Revised Life Principle*). The discussion will show that there is an ambiguity in *Brainstem Argument*.

Thought Experiment 2: Betty and the Chimp

Suppose that at time t_1 there is a human animal called Betty. Betty is a fully functioning human animal with a completely regular human form: she has human arms and legs, a human digestive system and so on.[56] Suppose that a brilliant scientist takes Betty's brainstem and transplants it into the brainstemless body[57] of an animal of a different species, say, a chimpanzee. Call this pre-surgery body Chimp-minus.[58] By t_2 the original brainstem that was once in Betty is fully integrated into the life processes of Chimp-minus and controls the vital functions of Chimp-minus. The original chimpanzee's brainstem is destroyed before Betty's brainstem is transplanted into Chimp-minus. Is the animal at t_2 human in virtue of having a human brainstem, or non-human in virtue of having belonged to a different species at t_1? According to (*Brainstem Condition*) sameness of brainstem is necessary and sufficient for sameness of the animal over time. Therefore, if the argument for (*Brainstem Condition*) is correct, the animal

[56] The expression 'human form' is borrowed from Madden (forthcoming).
[57] Olson does not believe in bodies, but nothing hangs on this; I could have written "particles arranged Chimp-minus-brainstem-wise" instead of referring to Chimp-minus as a body.
[58] Organ transplantation between species is referred to as xenotransplantation. Research focuses on animal to human transplantation, but the direction of transplantation here is irrelevant. An objection to this example could be that the issue is never a transplantation of the brainstem, and that the brainstem is not just another organ like the heart or the kidneys. However, we should not decide on this issue by appealing to this claim because the issue is precisely whether or not the brainstem is unique in comparison to the other body parts. Furthermore, anyone who takes inorganic brainstems seriously should also take seriously the idea of cross-species brainstem transplants.

consisting of Betty's brainstem and Chimp-minus at t_2 is the original human animal, i.e. Betty.

I will examine this scenario according to each disambiguation of the term 'life' as it figures in the argument. According to the first disambiguation the term 'life' should be understood according to (*Life Principle*). This understanding of the term seems plausible especially as an explanation of what makes something a living rather than an inanimate thing. The second disambiguation of the term is more robust and includes not just the distinction between living and non-living things, but also the differences between various kinds of living things. The upshot of the discussion is that the disambiguation of 'life' that supports (*Control*) does not support (*Life*) and the disambiguation of 'life' that supports (*Life*) does not support (*Control)*.

First Disambiguation:

According to (*Life Principle*) x is a life iff x is a jealous, self-directing, self-organizing, non-intermittent biological event with a metabolism and a natural boundary. This principle not only captures under what conditions a life exists, but also seems apt to capture synchronic identity criteria of a life (e.g. it tells us what makes something one, rather than two lives at a time); it gives criteria of something being a life at a time rather than criteria of identity for a life over time. It is this principle that lends initial credibility to (*Control*). For on the face of it, it is somewhat plausible that a life is individuated by its controller – by the thing that makes it autonomous (self-directing, self-propagating etc.).

Although we have seen that the persistence of a self-controlling event does not entail the persistence of the same controller, it is understandable why one might think that it does. Now consider time t_2 in the thought experiment. Suppose that the argument for

(*Brainstem Condition*) goes through and that we interpret all the premises in the argument according to (*Life Principle*), which makes (*Control*) somewhat plausible. We should then say that Betty survives as the animal composed of Chimp-minus and Betty's brainstem.[59] The reason is that the controller of the original organism at t_1 is now the controller of the organism at t_2. However, this seems to go against the intuition that a human animal cannot, for instance, survive being transformed into a dog or a chimp (or an object that has the form of a dog or a chimp).[60]

Olson could argue that the resulting organism is merely a variant on a brainstem in a vat. The vat in this case is Chimp-minus, and it supports the mutilated human animal. We should not assume that Chimp-minus becomes a proper part of Betty, much like we would not suppose a vat would. The problem with this response is that in the case of Chimp-minus we have a biological "vat" that is integrated into the same life as the brainstem. Since Chimp-minus partakes in that life in an appropriate way, it is a proper part of the organism whose life it is. In the case of the non-biological vat the claim that it merely provides life-support to the mutilated animal seems justified. The vat does not partake in the metabolism of the animal (Olson 1997, 134-135). Therefore, it fails to be a part of its life even in the sense specified by the first disambiguation of the term. By contrast, Chimp-minus and the original brainstem depend on each other in the appropriate way: they are both organic and partake in the same metabolism.

Moreover, if Chimp-minus is merely a life-supporting vat, yet participates in the metabolism controlled by the brainstem in an appropriate way, it seems that sameness of

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[59] One could argue that this description is plausible, because having a human form is not a necessary condition of belonging to the human species. Therefore, Betty can survive by having Chimp-minus as a proper part. However, here Chimp-minus also does not have the same evolutionary origin as a human animal.

[60] And as we will see below, this is the rationale underlying (*Life*)

brainstem and sameness of life come apart. Chimp-minus and the brainstem are integrated into one biological life. If Olson insists that Chimp-minus is merely a vat, yet admits that since it is organic its parts are controlled by the brainstem in the right way, he undermines (*Life*). For on this construal of the situation the following holds. Sameness of brainstem ensures sameness of a life: the organic "vat" and Betty share a life, for Chimp-minus is wholly organic. However, sameness of a life (given a particular definition of "life") does not ensure sameness of organism: although Chimp-minus and Betty share a life process, they do not form one individual organism.

Olson might respond by appealing to what common sense might have us say in this context, namely that at t_2 the animal consists of two parts: a human part and a non-human part.[61] The brainstem controls the life functions of Chimp-minus and the particles that compose Chimp-minus partake in the life controlled by the brainstem. There is only one life in which Chimp-minus and the brainstem partake. Therefore, there is only one resulting animal at t_2. By acquiring Chimp-minus as a proper part, Betty became a hybrid animal. But this is already admitting too much on Olson's behalf. Remember that according to (*Revised Life Principle*) an animal cannot survive if it does not fall under the same substance sortal at t_1 and at t_2. Since the substance sortal must be very specific, i.e. human animal, a human animal cannot become a hybrid animal.[62] Thus if Olson claims that Betty survives the experiment as a hybrid animal he must reject (*Revised Life*

[61] This would mean that it is possible to create a new kind of animal by transferring one animal's brainstem into the body of an animal of a different kind. We can already do something similar with plants, namely grafting, a process in which tissues from two different plants are joined together.

[62] Perhaps the claim that an organism falling under a certain substance sortal cannot become a hybrid animal is less obvious for some lower-order organisms, but it seems plausible for higher-order animals like humans. There might also be further questions about how specific the substance sortal must be and why (I thanks Amie Thomasson for raising these points). However, for the present purposes the latter claim, i.e. that a human animal cannot survive as a hybrid (e.g. a chimpanzee with a human brainstem) is sufficient.

Principle). Since this is the principle presupposed by the characterization of a life figuring in (*Life*), in that case we are left with no reason to accept (*Life*) and thus (*Brainstem Condition*).

Furthermore, even if we only appeal to (*Life Principle*) we cannot justify a move that treats the resulting animal as hybrid. If the animal at t_1 can be part non-human at t_2, in virtue of what does the non-human part retain its non-human status? The explanation for its retention of non-human status cannot appeal to the brainstem, for it does not have its original brainstem. It is unclear, on the brainstem view, in virtue of what we can say that the resulting organism has a human part and a non-human part. If Chimp-minus is identified at t_2 as the non-human part of an organism in virtue of something other than a brainstem at t_2, e.g. on the basis of DNA or the fact that it had a non-human brainstem at a time earlier than t_2, then the present account fails to give us necessary and sufficient conditions for sameness of animals over time.

We can see that this disambiguation of the term 'life' undermines (*Life*). For if (*Life*) is the correct criterion for human persistence, it should include reference to more than just a life (as a process), e.g. it should specify a substance sortal. I will now examine the second disambiguation of 'life'. The second disambiguation makes (*Life*) seem plausible. However, it also renders (*Control*) implausible.

Second Disambiguation

The second disambiguation of the term 'life' is (*Revised Life Principle)*: Life L1 at t_1 = Life L2 at t_2 iff L1 at t_1 and L2 at t_2 are jealous, self-directing, self-organizing,

non-intermittent biological events with a metabolism and a natural boundary and are spatiotemporally continuous and animate organisms that fall under the same substance sortal. This principle includes reference to substance sortals. More specifically, one of the conditions that need to be met for an organism to be identical to another organism at a later time is that they fall under the same substance sortal. This means that a human animal cannot survive changes that would turn it into a non-human animal. The life of a human animal is necessarily (possessed by a) human. This seems to be the thought that can motivate (*Life*). If (*Life*) is understood in a way that includes reference to substance sortals in an account of persistence, it is more restrictive and therefore seems more suitable as a criterion of the persistence of organisms. Furthermore, we have seen that (*Revised Life Principle*) is not merely a synchronic condition of life, but a diachronic one. It specifies persistence conditions rather than conditions for something to count as a living object at a time.

Suppose we understand the term 'life' as it figures in (*Life*) in the way specified by (*Revised Life Principle*). This would make (*Brainstem Condition*) inconsistent with (*Life*). Consider again our story about Betty and Chimp. According to (*Brainstem Condition*) the identity of the brainstem is necessary and sufficient for the identity of the organism over time. So Betty survives the surgery. However, according to (*Life*) she does not survive the surgery. For under the current disambiguation of the term 'life' as it figures in (*Life*) L1 and L2 can only be identical if they belong to an individual that falls under the same substance sortal at t_1 and at t_2. Presumably, the resulting animal in the experiment is not human (at best, as we have seen, it is a hybrid). Therefore, the resulting animal is not Betty.

In addition, recall that the reason (*Brainstem Condition*) seemed correct was that we accepted both (*Control*) and (*Life*). But (*Control*) cannot be true on this second disambiguation of 'life'. According to (*Control*) brainstem Brainy1 that controls life L1 at t_1 is identical to brainstem Brainy2 that controls life L2 at t_2 iff L1 (controlled by a brainstem) at t_1 is identical to L2 (controlled by a brainstem) at t_2. But it is highly implausible that the identity of a brainstem over time is necessary and sufficient for the identity of a life over time understood as the life of an organism that falls under a certain substance sortal (this is the second disambiguation of the term "life", which renders (*Life*) plausible). However, if we understand the term "life" as referring to a process that does not belong to an owner that necessarily falls under a certain substance sortal, then (*Control*) gains plausibility, but (*Life*) is not longer plausible.

According to (*Control*) and the disambiguation that contributes to its plausibility (the first disambiguation of the term "life"), Betty survives the surgery (as an animal that has Chimp-minus as a proper part). However, according to (*Life*) and its proper disambiguation (the second disambiguation of the term "life"), Betty does not survive the surgery. Thus we see that (*Control*) and (*Life)* yield incompatible results when applied.

Conclusion

The previous considerations show a few problems with the argument for (*Brainstem Condition*), namely with the conditions on which the brainstem Brainy1 that controls L1 at t_1 is identical to the brainstem Brainy2 that controls L2 at t_2 iff Organism O1 at t_1 (animated by L1) is identical to Organism O2 at t_2 (animated by L2). First, as the story about Stemmies shows, the notion of sameness of brainstem and the notion of sameness of life can come apart. Understood as a metabolic, self-sustaining and self-

directing event, a life can continuously persist without the persistence of its original brainstem. Second, the story about Betty and Chimp shows that if we understand the term 'life' in the way specified by (*Life Principle*), (*Control*) may seem plausible but (*Life*) is undermined. On the (*Revised Life Principle*) disambiguation of the term 'life', (*Life*) may seem plausible, but at the expense of rendering (*Control*) implausible. In other words, there is no disambiguation of the term 'life' that makes both the (*Control*) premise and the *(Life*) premise true. The argument for (*Brainstem Condition*) is therefore unsound.

Given the problems that face (*Brainstem Condition*), we might be advised to look elsewhere for the persistence conditions for human animals. As the preceding considerations show, brainstem identity over time is unlikely to be a feature that is included in the criteria of human persistence.

Concluding Comments: Kinds of Biological Individuals and Kinds of Persistence Conditions

The previous discussion suggests two things. First, Olson's account of human persistence relies on what is arguably the most plausible candidate – if there is any – for tracking the persistence of the human animal over time: the controller/center of maintenance of that human animal. Wilson argues that 'human' designates a functional individual. He thus agrees with van Inwagen and Olson that the kind 'human organism' is a functional biological individual.[63] Much like van Inwagen and Olson, Wilson thinks the brain – presumably because of the brainstem – is the most important part of this

[63] This does not entail that it is not a substance kind: Wilson, like Olson, argues that 'person' signifies a variety of properties possessed by the human functional individual and that we should not think that 'person' designates another substantial kind, distinct from 'human being' (1999, 111).

functional individual, since it coordinates the activities of the other body parts (1999, 108-109). As we have seen, however, the brainstem account ultimately fails at giving an adequate persistence condition for human animals. Since this account fails, it is unlikely that we can give necessary and sufficient conditions of human persistence in terms of any particular human part.[64]

Second, one might ask if this chapter does not provide some hope for giving persistence conditions for human animals given the available positions about biological individuals, such as the pluralist view. Perhaps looking more carefully at what kind of biological individuals humans are will also yield some kind of persistence criterion for human organisms. I will briefly discuss why I believe we have little hope to be optimistic.

If we want to give persistence conditions of human animals, we need to first specify what kind of individuals we have in mind, e.g. whether 'human' is a functional individual, a genetic individual or a developmental individual.[65] One complication that the pluralist view highlights is that there might be an overlap between individual kinds. According to Wilson such an overlap, e.g. between a developmental and a functional individual, can occur through composition (1999, 119-125). For instance, at some point during the developmental stage "the cells that compose the developmental individual become functionally integrated enough to also compose a functional individual" (1999,

[64] Olson (forthcoming c) seems to finally agree that a human biological life can persist without a functioning organ of maintenance. However, he argues that if that is the case, "transplanting even the whole brain would only move an organ from one animal to another" (forthcoming c, 6). But if my account is correct, focusing only on the functional individual in such a case means that we could not draw this conclusion. Whether or not we are transplanting only an organ or the whole animal depends on what functions are important for the persistence of the animal. Without answering this question, it seems that the whole brain and the rest of the body left behind are equally good candidates for being the original animal, under the assumption that both are alive.

[65] As explained by Jack Wilson (see the first part of the chapter for clarification).

106). There are two possible strategies for specifying the persistence conditions of an individual consistent with this approach. One strategy would be to specify the kind of biological individual humans are and the kinds of individuals they overlap with through composition (e.g. for example, perhaps human animals are functional individuals that overlap with genetic individuals and developmental individuals).[66] The persistence conditions should then respect not only the main kind of individual humans are, but the overlaps with other kinds of individuals. Such an account would be very restrictive: if 'human' designates both a genetic and a functional individual, the kinds of changes a human can undergo are fewer than the kinds of changes a functional individual with no such overlap can undergo.[67] If humans are functional individuals with genetic (and developmental) overlap, it seems that they are able to lose, but not gain new parts that do not share the individual's genetic material. Wilson himself states that a human *functional* individual can survive the loss of some of its parts and the reattachment of those parts. But he is "less certain about what to say about the introduction of artificial parts such as a pacemaker or artificial heart into a functional individual" (1999, 108). If a human is also a genetic individual, then it is also unclear whether a human can gain parts with new genetic material.

The second strategy for specifying the persistence conditions of an individual compatible with Wilson's approach can be drawn from his suggestion that there is a reason in favor of the view that an artificial heart is a part of the human: "a natural organism is itself alive and, at least at the cellular level, it is composed of living parts. Below the cellular level of organization, though, both the artificial and the natural organ

[66] Unfortunately, Wilson does not state more about overlap through composition than what I have mentioned.
[67] Though it is unlikely that there is any *biological* functional individual with no such overlap.

are composed of nonliving parts" (1999, 108). Such an approach would be more flexible. For example, it might be possible for a human animal to gain new parts that do not share its genetic material.

These considerations suggest that if the view that the human animal is a functional individual that overlaps other kinds of individuals can also yield persistence conditions, we need a fully worked out account of just in what sense the overlap of these individuals matters for their persistence conditions. Suggesting, like Wilson, that the overlap occurs through composition does not in and of itself suggest anything to resolve the issue of what would count as a part of the human. As we have seen, the level of specification that matters for proper functional parthood might be the subcellular level. However, one reason that suggests Wilson should not think an artificial heart is part of the human organism is that if the level that matters is the subcellular level, there is little point in insisting that the genetic aspect matters at all for persistence conditions. In the end, everything is composed of nonliving parts and therefore, looking at various types of overlap between biological individuals is uninformative: the persistence criterion should only be derived from the main kind of individual we are concerned with (in our case – functional). If we want to respect the overlap with various kinds of biological individuals when giving persistence conditions of humans, we will generate a more restrictive account of persistence. However, it is unlikely that such an account will be able to cover all possible scenarios in which we would want an answer to the persistence question. In Betty and the Chimp type scenarios a functional-plus-genetic criterion would presumably

tell us that neither Betty nor the Chimp survive. However, our intuitions would presumably go against this conclusion.[68]

Postscript

In a response to the argument against the brainstem criterion of the persistence of human animals, Olson agrees that it is likely that he was wrong to connect the brainstem with the continuation of a human life (forthcoming c). He also cites empirical reasons to not do so. Specifically, he agrees with Shewman that the brainstem is not the organ of maintenance in human beings, or at least not the only one. For example, the hypothalamus, controls autonomic nervous-system activities such as temperature regulation and sleep (Olson forthcoming c). Furthermore, he agrees with Shewman that a human biological life does not need any sort of central control. While the brainstem and other organs improve the performance of the vital functions, many of these functions, e.g. immune-system activity and wound healing, can continue without these organs (spontaneous breathing and heart function cannot).

Admitting that a human life does not need central direction by a brainstem, according to Olson, also introduces a new fission case. Suppose a human animal's brain (I take Olson to mean a brain including the brainstem) was preserved, as well as the rest of the animal. Since the brainstem criterion is false, we have to say that both the brain and the brainless (or headless) human animal survive the procedure. This is a branching, or a fission case, in which the only thing that prevents me (or more precisely in this

[68] I would like to thank Andreas Blank, Berit Brogaard, Simon Evnine, David Mark Kovacs, Eric Olson, Mark Rowlands, Nick Stang and Amie Thomasson as well as the audiences at the 2014 Joint Session at Cambridge, the University of Pécs and the Mind and Metaphysics Workshop at the University of Miami for comments on drafts of this chapter.

context, the human animal) from surviving as one of the two resulting being is the existence of the other being (Olson forthcoming c). Olson does not think that the problem is very serious. For according to him, the problem only arises if we also assume that the detached brain and the brainless remainder could be organisms, and that each would be the original organism in the absence of the other. But Olson thinks these assumptions are implausible, and that therefore the fission case is not a serious problem for the new way of thinking about organism persistence (Olson forthcoming c).

Chapter 2: Is Romeo Dead? On the Persistence of Organisms

Introductory discussion

Romeo was a happy fifty-year-old chimpanzee. One day, he peacefully died. Judith, his caretaker, thinks he is merely sleeping, so she quietly waits for him to wake up, expecting him to have a late breakfast. Meanwhile, Peter, the other caretaker at the animal sanctuary checks on Romeo and determines he died moments ago. He hurries to inform Judith that, sadly, Romeo just died. Judith, surprised by the news, says "Oh no! I was waiting for him to wake up, thinking he was asleep, but all this time he was actually dead!" Peter, however, tells her that she's wrong, because not only is Romeo not asleep, he is also not dead; after he took his last breath, he ceased to exist altogether. He explains that since organisms cease to exist at death, they don't persist through death as corpses. Strictly speaking, there is no composite object, Romeo, of which one can say that *it* is dead.

The underlying question that divides the views regarding Romeo after his death is when animals, and more generally organisms, cease to exist. The answers divide into two main camps: (i) *Organicism*: organisms cease to exist at death; (ii) *Somaticism*: organisms cease to exist at some point after death, for instance, when they are cremated. I will argue for (ii), the view that organisms can persist through death. While Judith may be wrong that Romeo is asleep, she is not wrong to assume that Romeo is now a dead chimpanzee.

The question of organism persistence is important for a number of reasons. First, according to a popular view in personal identity, namely animalism, we are identical to human animals. Therefore, our persistence conditions just *are* the human animal's persistence conditions. So if animalism is the right theory of our persistence conditions, then to settle the organicism/somaticism debate is to settle when *we* cease to exist. Second, the implications of the organicism/somaticism debate are wider than just personal identity. Those who are interested in giving a definition of organismhood are also, presumably, interested in whether organisms are necessarily living beings. And those who are, more broadly, interested in giving a principled defense of the existence of composite non-living objects should also be interested in a proper answer to this question, since some consider *living* organisms paradigm cases of composite objects. Lastly, how we answer the question may also have implications for how we conceptualize some professional activities, and even for some ethical issues. For example, suppose organisms turn out to be necessarily alive. In that case, coroners don't study human animals properly speaking, but at best they study traces of objects somehow related to those animals. That would be true even if the human animal only recently died. The zoo vet examining what appears to be the dead Romeo is not examining a composite object at all. In addition, if living organisms do not persist as corpses and cease to exist at death, then perhaps we needn't worry about organ procurement without ante-mortem consent. Worrying about what happens to one's body after death is unjustified, for that object will not exist (some have, in fact argued along similar lines).[69] Furthermore, presumably, by the same token, the organs of that organism wouldn't exist either, and so couldn't be procured.

[69] According to some proponents of the first answer to the question, once we properly understand the metaphysics of the human animal, we can argue that consent is not needed for organ procurement (Delaney

As I said, I will defend somaticism: dead organisms exist and are identical to the living organisms they result from. Often, the defense of this view appeals to intuition (e.g. by analogy to artifacts, to ordinary language use or to ordinary practice). Instead, I will develop a new argument for the position, which does not appeal to these intuitions. I will argue that being an organism is a natural property, instantiated by both living and dead organisms. If the property is also instantiated by dead organisms, then we should not deny their existence. And if they exist, the best explanation for their existence is that they result from the living organisms with which are causally and spatio-temporally continuous. In a nutshell, the argument will be as follows:

P1: Being an organism is a natural property.

P2: If things instantiate the natural property of being an organism after death, then dead organisms exist and are identical to the living organisms that they result from.

P3: There are things that instantiate the natural property of being an organism after death.

Conclusion: Dead organisms exist and are identical to the living organisms that they result from.

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and Hershenov, 2009; Hershenov and Delaney 2010). You are clearly intimately related to a living human animal – either by identity or by some other intimate relation (like constitution). You care about what happens to you in the future, and hence you care about what happens to that human animal. You might put your concerns in terms of your autonomy, bodily integrity or violation of bodily property. However, Dalaney and Hershenov (2009; 2010) argue that since the composite objects we call corpses do not exist there is no sense in which we become corpses. Furthermore, we cannot even say that something we are intimately related to survives – so it is not *our* bodies that become corpses and become posthumously mutilated (2009, 8). If all of this is true, then organ procurement without consent is not against anyone's interest, and for that reason it may be morally permissible. After all, there is no object of posthumous harms (2009, 3).

In order to argue for somaticism, I will draw on two areas that do not normally figure in debates on organism persistence: the metaphysics and philosophy of science literature on natural properties, and work in biology (especially population ecology and zoology). I will identify the relevant notion of naturalness and show that biological laws quantify over both living and dead organisms. To do so, I will review some empirical examples from biology. In what follows, I will first lay out the debate in a little more detail in section 1. In section 2 I will identify the relevant notion of naturalness, and in section 3 I will look at some of the evidence in favor of the view that things may still instantiate the property of being an organism after they die. In section 4 I will show that there is a natural way to fill in the details of somaticism, which allows it to be more informative than the claim that dead organisms exist and are identical to the living organisms they result from. Lastly, sections 5 and 6 will be devoted to examining one of the main objections to the line of thought developed in the paper.

1. Human animals and death: setting up the debate

There are two main views concerning whether an organism persists through death.[70] Some think that organisms cannot persist through death, because a necessary condition for an organism to even *exist* is for it to be alive. This is what I called organicism[71] (proponents include van Inwagen (1990), Olson (1997) and Hershenov

[70] These are the two main views that specify physical persistence conditions; there are other views that do not neatly fall into one of these two types of views. One could hold, with Wiggins, that human animals essentially have psychological characteristics. Or one could hold that one is identical to an animal, but that one's persistence conditions are psychological. This might mean that the persistence conditions of the animal might be psychological (Johansson, 2007). In what follows, I will ignore these views.

[71] I mean to use the term organicism only to refer to the view that organisms do not persist through death. The view is distinct from organic animalism.

(2005)). Others think organisms can persist through death; call this the view *somaticism* (somaticists include Mackie (1999b), Carter (1988; 1989; 1999), Feldman (1992), Thomson (1997)).[72] According to the somaticist, being alive is not a necessary condition for an organism to persist. But a necessary condition for organism persistence might be that the organism remains more or less intact.[73] The distinction between the two camps can be summarized by their attitude towards the *Termination Thesis* (Feldman, 89-90). According to the Termination Thesis organisms do not survive their death – they cease to exist (terminate) at death. Somaticists think that the Termination Thesis is false, while organicists think it is true.

We should keep in mind that while both theses are clear about whether there are dead organisms, they are not very specific about the persistence conditions of organisms: neither view specifies a set of conditions that are necessary and jointly sufficient for an organism at a time t_1 to be identical to an organism at a time t_2. I won't offer such conditions either. Instead, I will just focus on whether organisms cease to exist at death. If they don't, then the corpses that result from them are identical to them and the somatic view is true. The somatic view consists of the following claims:

(1) *The existence claim*: dead organisms exist.

(2) *The identity claim*: dead organisms not only exist, but are identical to the living organisms they result from.

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[72] Blatti makes an analogous distinction between two versions of animalism; he calls them somatic animalism and organism animalism (2014). We can divorce the issue of personal identity from the issue concerning the persistence of animals. Also, Blatti's distinction seems to be parasitic on the distinction between the somatic view and the organism view.

[73] If the organism suffers an incredibly violent death, for instance by explosion, it does not persist; see Mackie (1999b).

Since organicism denies (1) it also clearly denies (2). In other words, most organicists are corpse eliminativists: they deny both (1) and (2). However, it is possible to accept the existence claim and deny the identity claim. For instance, suppose an organism doesn't suffer an especially violent death. Apart from somaticism, one can also claim that the dead organism exists in the following ways: (i) corpse creationism: when a living organism ceases to exist, a dead organism comes to instantaneously replace it and so a new object – the dead organism – comes into existence; (ii) corpse concurrentism: the dead organism (or what Olson calls a body) was collocated with the living organism all along, so there is no new object that comes into existence after death (Olson 2013, 88-89). Since most organicists are corpse eliminativists the paper will assume that the main opponents of somaticism deny both (1) and (2). However, much of what follows applies (with some modifications) to corpse creationism and to corpse concurrentism.

In defending the somatic view, I will also show that there is a reason to favor a particular kind of somatic account – the historic dependence account – since it can fill in many details regarding organism persistence. According to this account, the existence and persistence conditions of organisms are given in terms of their lives for some of their career (until they die), and then given in terms of spatio-temporal, causal and structural relations to the living organisms they result from. So worries regarding the informativeness of the account can be put aside.

2. Being an organism: a natural property

In an influential paper (1983), Lewis distinguishes between various distinct roles that the concept of naturalness can play. Despite wide disagreement in the literature about how to understand naturalness, many metaphysicians consider the concept highly serviceable. I will go over some of the roles the concept can play in order to hone in on the one relevant for my argument (the discussion is not meant to be exhaustive). Note that the following conceptions of naturalness are not meant to be definitions. Instead, they are ways to understand what natural properties are and the kinds of ways they can inform various discussions in metaphysics.

The concept of naturalness is often invoked to characterize the properties that serve as a minimal supervenience base for the rest of reality. On this conception, the *perfectly* natural properties are the most fundamental in the sense that they serve as a "blueprint" for the rest of reality. It is the perfectly natural properties, on this view, that carve nature at the joints, and these properties are discovered by physics (Lewis 1983, 364). For example, the property of being negatively charged is perfectly natural (Dorr and Hawthorne, 10; the issue was first raised in Lewis 1983, also see Lewis 1984). Similarly, Sider claims that while 'red' and 'blue' carve more closely to the joints than 'bred' and 'rue', the former properties are not perfectly natural, because colors are not fundamental (Sider 2011, 7).

Apart from being the properties that carve nature at the joints, and that serve as a minimal supervenience base, perfectly natural properties are also construed as intrinsic properties. The concept of intrinsicality is connected to the concept of duplication.

Duplicates share all their intrinsic properties, and intrinsic properties are those that never "divide duplicates within or across worlds" (Dorr and Hawthorne, 17). In addition, one can think about natural properties in terms of independence: the perfectly natural properties are mutually independent. The independence claim can be understood in various ways. For example, if a property is perfectly natural, then facts about it do not supervene on facts about all the other perfectly natural properties; and if a thing is not perfectly natural, then it is because it is related to the perfectly natural things by chains of definability (Dorr and Hawthorne, 13; Lewis 1984, 228, for a discussion of the relation between the most elite things discovered by physics and things that are elite to a lesser degree).

Lewis also thinks of natural properties as those that account for similarity among things that share it, and for dissimilarity among things that are divided by it. The more natural properties two things share or differ with respect to, the more similarity there is between things that share them, and the more dissimilarity there is between things divided by them. There are a few ways to understand these claims. Dorr and Hawthorne suggest that one gloss of understanding the dissimilarity claim, for instance, is that "a property's degree of naturalness is given by (some monotonically increasing function) of the minimum possible degree of dissimilarity between an instance of the property and a non-instance" (22). Since similarity and dissimilarity allow for degrees, the latter notion of naturalness is graded.

In addition, there is a scientific conception of naturalness. On the scientific conception of naturalness, natural properties are not only the ones that are fundamental, or the ones that constitute a minimal supervenience base. For example, Schaffer argues

that natural (or sparse) properties carve out causal powers (Schaffer 2004, 94). He presents a few examples of the causal powers that scientific natural properties might have. Natural properties may include having a certain mass, being a water molecule, and even being a desire. Desires, for instance, have causal powers: having a desire to turn off the switch causes my turning off of the switch (Schaffer 2004, 94-95). Similarly, the property of being a water molecule has causal powers, which belong to *the macro-property* of being a water molecule: individual hydrogen or oxygen atoms do not have the causal powers that water molecules have (Schaffer 2004, 94-95).[74] This conception of natural properties as carving out causal powers is related to their figuring in scientific laws: the laws "codify their particular powers (Schaffer 2004, 95). Note that these properties are not fundamental. So there is no rivalry between natural properties as those that figure in scientific laws, and *perfectly* natural properties that constitute a minimal supervenience base.

The notion of a graded naturalness (either for the scientific notion or the perfect notion) is a substantive assumption. One way to think about the relation between the scientific notion and the perfect notion is as follows. If you have both notions of naturalness (scientific and perfect), you have the graded notion (not a definition of it): one thing is perfectly natural and one (the scientific notion) is less natural. However, according to a different line of thought the word "natural" is ambiguous. According to one candidate use it means the perfect notion while according to the other it means the scientific notion. The two notions are not unrelated, but they are different disambiguations (not two kinds of naturalness). So in this case the notion of naturalness is not graded; there are just two absolute notions. For the purpose of my discussion,

[74] The examples are borrowed from Kim (1998, 108).

however, these issues can be put aside, especially since I focus only on the scientific notion of naturalness.

So we can think of natural properties, on the scientific conception, in the following related ways: (a) natural (or sparse) properties carve out causal powers; (b) natural properties figure in laws. For the purpose of deciding between organicism and somaticism, the scientific conception of naturalness is the relevant one. Since *organism* figures centrally in biology, it is a natural concept. It may not be as natural as being negatively charged, but it is, presumably, at least pretty natural. An organism has causal powers that individual molecules (or simples) do not. So it seems that being an organism meets the requirement specified in (a). Furthermore, (b) emphasizes the role of natural properties in scientific laws. The property of being an organisms also figures in various biological laws, e.g. in evolutionary theory.

Now we have a reasonably good grasp of what sort of property the property of being an organism would have to be, if it is to be a natural property. However, this doesn't yet tell us whether organisms could continue to exist as corpses. To see whether organisms can persist through death, we need to show that the property of being an organism that figures in biological laws is the one that dead organisms also instantiate. If we can show that, we can make a strong case for the claim that the natural property of being an organism is instantiated by both living and dead organisms. To simplify the discussion, I will call the property instantiated by both living and dead organism *being a somatic organism*. The property only instantiated by living organisms, favored by the organicist, will be called *being an organic organism*. If the somatic view is correct, then

being an organism just is *being a somatic organism*; if the organic view is right, then *being an organism* just is *being an organic organism.*[75]

3. In defense of somatic organisms

The basic strategy will be the following. Look at scientific laws that quantify over organisms. Check if they quantify over both living and dead organisms. If they do, then we can assume that the property of being an organism is instantiated by dead organisms. If that's the case, then things that persist through death are natural. But one might argue that things that do not persist through death are more natural than things that do. To address this worry, I will appeal to some widely accepted theoretical virtues as they apply to the laws of biology. These considerations will show that being a somatic organism is a more natural property than being an organic organism.

We have seen that the (related) roles of natural properties germane to our discussion are those specified by the scientific conception of naturalness: (a) carving out causal powers (Schaffer 2004, 94)[76] and (b) figuring in laws (Lewis, 1983; Dorr and Hawthorne 20-21). Given these roles, we should determine what the relevant causal powers and laws are when we talk about organisms in scientific contexts. In other words, we need to specify the discipline that we should appeal to in determining whether *being an organism* (alive or dead) is natural. Given the kind of entities we are interested in, we

[75] I am neutral about the ontology of properties; I am not committed to any specific claim about what properties are. I am not begging the question against those who think that there is no such thing as the property of being a somatic organism, since they can understand this as a claim about abundant properties, i.e. the meaning of our predicates (Lewis 1983). It's not controversial to assume that there is an abundant property of being a somatic organism, though of course, the sharing of this property between living and dead organisms wouldn't establish my view. So, it's fine to talk the way I will talk in the paper.

[76] Carving out causal powers means, roughly, specifying the features on which causal powers hinge (Schaffer 2004, 92).

should focus on biological laws. Biology is the main scientific discipline that studies organisms. It can therefore tell us if the property of being an organism figuring in natural laws is the property we identified as being a somatic organism. If that is the case, then the property of being a somatic organism meets the requirements for the scientific conception of naturalness.

Generalizations in biological laws are non-universal. I will not go over various ways to understand this feature of biological laws; it is enough for us to know that there are situations in which law-like generalizations in biology fail to hold, even if the conditions specified in the antecedent of the generalization all obtain (Reutlinger et. al.).[77] I will present some biological laws that appear to quantify over somatic organisms. Not any sub-discipline in biology will work for this purpose. For instance, ethology is interested in living organisms, whereas anatomy is neutral with respect to the life status of the individuals it studies: it may be also be interested in dead organisms since it only studies the structure of organisms (and often, this is done through an investigation of a dead specimen).[78] Other related disciplines, like bioarcheology, or forensics, are only interested in dead organisms. However, there are sub-disciplines in biology that study both living and dead organisms: population ecology (the study of ecosystems) and zoology (in particular, studies animal behavior). I will focus on examples from these fields.

Recall that the property we are interested in is the property of *being a somatic organism*. Things that instantiate this property (if any) can persist through death. We called the property that the organicist thinks is more natural *being an organic organism*.

[77] For an overview, see the Reutlinger et. al. (2015).
[78] For a discussion of the dead specimen argument see Feldman (1992) and Hershenov (2005).

The question that concerns me is which of these, if they were instantiated, would be *more* natural. My argument will be as follows. Somatic organisms are better fit to play some theoretical roles in biology, while organic organisms may be better fit to play other roles in biology. We then have two choices: (i) posit both sorts of organisms, or (ii) posit one sort of organism and explain how the sort of organism that was posited can still play the other roles. Strategy (ii) is better than strategy (i). And if strategy (ii) is better, then we should favor somatic organisms over organic organisms.

It seems that biologists interested in ecosystems and inter-species interactions are also interested in what animals eat. The feeding habits of animals may figure in various laws about their behavior, the benefit of such behavior and its relation to various environmental variables. Some animals are carnivores, and feed on other animals. For instance, the sloth bear is an insectivore. An appropriate description of its feeding behavior would be: the sloth bear species feeds on insects.[79] There are other, more gruesome examples: the sand tiger shark embryos feed on the smaller sand tiger shark embryos while still in the womb. This is a case in which one species during a certain period of its career feeds only on members of its own kind, i.e. it is cannibalistic. It seems that there is an abundance of examples to be found that can be described by general laws (or law-like regularities) of the form: species A feeds on species B, where it is possible that species A = species B.

The basic description of such systems is that there are animals (predators) that prey on and kill other animals and then feed on their corpses, and some of these animals may feed on animals that belong to their own species. The basic behavior here is

[79] *Insect* might be not specific enough if one is interested in particular species. But our concern here is organisms and so the particular species at hand for the sloth bear are irrelevant.

described in terms of laws that specify predator and prey relationships.[80] The case in which members of a certain species feed on other members of their own species – cannibalism – can be thought of as a subcategory of the general law specifying predator-prey relations. However, often the inter-species predatory behavior is related to other changes in the environment, e.g. to the scarcity of members of different species. So while the basic behavior – animals that prey on other animals – can be described as a predator-prey behavior in both cannibalistic and non-cannibalistic cases, cannibalism sometimes introduces considerations not captured by laws that only mention non-cannibalistic behavior. I will now briefly discuss a case of predation in which members of a species feed on members of a different species, and an additional case in which members of a species feed on members of their own species. The first case might be an easier one to address for the organicist than the second case. But laws involving cannibalism, and in particular sexual cannibalism, pose an even greater challenge to organicism. The reason for introducing these kinds of laws, therefore, is not just that laws involving heterogeneous predator-prey species differ from cases of cannibalism[81], but that the organicist will have more difficulty explaining some instances of cannibalism than cases of heterogeneous predator-prey behavior. So the examples will proceed from "easier" ones to more serious challenges for the organicist.

Take the following predator-prey case. This case is not yet a law, but is it a simplified description of predator-prey behavior that figures in various ecological laws.[82] A wolf kills a rabbit, which the wolf then feeds on. We would express it with a sentence

[80] For a characterization of prey and predator as functional kinds in biology (specifically, in population ecology) see Strevens (2008, 157-161).
[81] For instance, some biologists examine lawlike relations between cannibalistic and non-cannibalistic behavior in predators. See, for example, Kohlmeier and Ebenhöh (1995).
[82] A predator, for many species, can be defined as an animal that eats another animal (Barbosa and Castellanos, 1).

like "the wolf killed the rabbit and fed on *it*".[83] If we posit somatic organisms, we can say that the claim is true as stated. For the claim that the wolf feeds on something that is a corpse – a composite organism – is strictly speaking true. The rabbit was alive and then became the corpse that the tiger fed on. The organicist would not deny that a wolf killed a rabbit. However, the organicist would deny that the wolf fed on the rabbit, because strictly speaking, the moment the wolf killed the rabbit, the rabbit ceased to exist. The organicist would therefore need to paraphrase "fed on *it*" in order to talk about this scenario in a way that is compatible with the original description, which is strictly speaking false according to the organicist. Such a paraphrase would need to look something like "the wolf killed the rabbit and fed on the particles arranged rabbit-corpse-wise that are spatiotemporally continuous with and result from the living rabbit".

Another type of predator-prey relation is exemplified by cannibalistic behavior. Laws involving cannibalism are another category of laws that is best explained by the assumption that somaticism is true. Arguably, some laws that involve cannibalism cannot be reduced to simple predator-prey relations, since it is important for laws involving cannibalism that members of a certain species feed on other members of that same species, e.g., because of lack of other prey. One might argue that cannibalism does not add anything to the previous considerations regarding predator-prey relations. It is simply another instance of animals feeding on other animals, which can be subsumed under the general predator-prey relation. However, even if cannibalism requires the predator-prey relations to be in place, further argument is needed to show that it is reducible to non-

[83] This is, of course, a description, not a law. But there are many laws and lawlike generalizations describing predator-prey interaction. For instance, Wollkind and Logan represent the biological control of the McDaniel spider mite (a pest on apple tree foliage) by a "predacious mite species, which *feeds upon it* [by a] continuous-discrete time hybrid model incorporating temperature effects explicitly and mite metamorphosis implicitly". (Wollkind and Logan 1987, 265 my emphasis).

cannibalistic predator-prey relations, where 'reducible' means roughly something like: laws about cannibalism can be rephrased in terms of predator-prey laws in a way that does not lose any explanatory force.

For instance, in some species cannibalism is said to have benefits and therefore evolutionarily adaptive.[84] Furthermore, cannibalism may have an effect on predator-prey dynamics (where the predator and the prey species are distinct).[85] But most importantly, laws about a specific example of cannibalism pose a serious problem for the organicist, even if she thinks she can accommodate laws about predator-prey relations in which the predator and the prey belong to different species. In some species sexual cannibalism has been observed. In such cases, one member of a species (typically a female) preys on and consumes the mating partner before, during or after mating.[86] For example, sexual cannibalism has been observed in various kinds of spiders, praying mantes and scorpions. It does not occur in 100% of the cases[87], and the likelihood of sexual cannibalism occurring depends on a variety of factors. For laws involving this behavior, we need to be able to say that a certain organism, e.g. a praying mantis is being eaten while mating.

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[84] For instance, Crossland et al. argue that the behavior of tadpoles of cane toads, who "specifically target conspecific eggs for consumption, ignoring the eggs of sympatric frog species" can be explained by the benefits of cannibalism to the cane toads (2011, 775). Specifically, the study finds that "eggs contained sufficient nutrition for cannibalistic tadpoles to develop through to metamorphosis, and egg consumption enhanced rates of tadpole growth and differentiation through reduction of subsequent competition from younger tadpoles. Features of the cane toads' life history (e.g. synchronized deposition and development of all eggs within a clutch; delay between hatching and onset of feeding; short larval stage relative to interclutch interval of a given adult female) mean that the cannibals are unlikely to be close relatives of the younger conspecifics they consume (either as eggs or as metamorphs). Kin selection may thus favour rather than oppose cannibalism" (2011, 775). A different example concerns cephalopods. According to Ibáñez and Keyl "cannibalism is part of a population energy storage strategy enabling cephalopod populations to react to favourable and adverse environmental conditions by increasing and reducing their number" (2010, 123).

[85] For examples, see Fox (1975); Volker H. W. Rudolf (2008); C. Kohlmeier and W. Ebenhöh (1995); Kjartan G. Magnusson (1999).

[86] For examples see Mark Elgar (1992); Mark A. Elgar and David R. Nach (1988); Shawn M. Wilder & Ann L. Rypstra (2012); César Gemeno and Jordi Claramunt (2006).

[87] Sexual cannibalism occurs in a wide range of species but is most prevalent in praying mantids (Insecta Mantodea) and spiders (Arachnida, Araneae)(reviewed in Elgar 1992). The frequency of sexual cannibalism among these taxa varies considerably and can range from 0 to nearly 100% of all mating encounters, even within the same family (Shawn M. Wilder, Ann L. Rypstra and Mark A. Elgar 2009).

Generally, when the female eats the male praying mantis during mating the female first eats the head of the male praying mantis, while the rest of it continues to mate.

On the somatic view, somatic organisms can persist through death. It is therefore strictly speaking true that the female praying mantis feeds on the male during mating. It is also strictly speaking true that the male praying mantis mates with the female before and after being killed. On the organic view, however, that claim is strictly speaking false, but there is a paraphrase that is close enough and is true. If only organic organisms exist, then the female praying mantis feeds on particles arranged male-praying-mantis-wise, which are spatiotemporally continuous with (and result from) the male praying mantis the female is mating with. Furthermore, the male praying mantis mates with the female and after it dies the particles arranged dead-praying-mantis-wise are mating with the female.[88]

The organicist might argue that instead of quantifying over dead organisms, a scientific law may simply paraphrase talk of dead organisms into talk of particles arranged dead-organism-wise. Instead of quantifying over the former, these laws will quantify over the latter. But if we look at the two strategies for formulating scientific laws concerning predator-prey relations or more specifically cannibalism, we can argue that the somatic approach has the upper hand. The issue is not ontological; the worry concerns the simplicity of the somaticist's laws in comparison to the miscellaneous laws of the organiscist. In order to formulate these laws the organicist would have to first quantify over living organisms and then quantify over particles arranged dead-organism wise. To do so, one would have to introduce some other way of quantifying over particles arranged

[88] Of course, some of the formulations depend on what conception of death organicists have. Perhaps the male praying mantis does not die as long as one of its body parts can keep moving. A more serious problem – apart from finding the right conception of death – is that the organicist has to first adopt a certain conception in order to state what the exact moment of death is, whereas the somaticist does not have to take a stand on the precise moment of death (i.e. whether death occurs at decapitation or afterwards).

dead-organism-wise, like plural quantification. So in order to capture the behaviors codified in some biological laws the organicist must introduce two kinds of quantification.

By contrast, the somatic view needn't introduce an additional sort of quantification in order to talk about such laws. Since dead organisms exist, it is strictly speaking true that, e.g., the wolf killed the rabbit and ate *it*, or that a crow ate *the nestling* of another crow.[89] So even if the organic view can describe such data, the somatic view seems to have the upper hand on ground of parsimony and simplicity, in addition to it not needing to engage in paraphrase, since it can take the scientific claims as literally true.

The organicist may object in the following way. Suppose that there are some laws in biology that only quantify over living animals. The somatic view does not capture what is unique about such laws. For instance, laws about bird migration only care about living specimen that can actually migrate. So while somaticism better captures some laws in biology, organicism more precisely captures others. However, note that the somaticist can easily introduce a restriction to the effect that the organism is alive, e.g. for describing migration trends and behaviors. So while the organicist and the somaticist can say the same things about living organisms, when it comes to dead organism the organicism must quantify over particles arranged dead-organism-wise, whereas the somaticist may simply talk about organisms that are no longer alive. So while the somatic view can just make do with one kind of organism when phrasing any biological law, the organic view must introduce another sort of thing to talk about certain laws that quantify over entities whose existence it denies. This is not an ontological, but a methodological problem having to do with theoretical parsimony: the organic view, unlike the somatic

[89] See Yom-Tov (1974).

view, must bifurcate the theoretical role originally assigned to *organism*.[90] Instead of organisms being able to play the same role before and after death, organisms play one role before death and particles arranged dead-organism-wise play a second role after death.

The somaticist therefore has a theoretical advantage over the organicist.[91] Of course, it is possible to phrase any biological law in terms the organicist would accept. For example, laws involving dead organisms would involve plural quantification over particles and singular quantification over organisms. Such laws would be much less simple than laws than only quantify over organisms. Furthermore, the device for quantifying over things like the male praying mantis after death might prove especially problematic. For biological laws are presumably not stated as individual case descriptions, but as a lawlike generalization about members of kinds of organisms. So talking about simples-arranged-dead-organism-wise would require some kind of plural quantification over a plurality of simples-arranged-dead-organism-wise. While it might be possible to state such laws using paraphrases and plural quantification, the statements are likely to be extremely complicated.[92] The paraphrase strategy of quantifying over simples rather than single objects may work here, but it would be extremely complicated.[93]

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[90] The organicist might also raise a related worry. Being alive is a natural property. If so, it is a necessary property. Furthermore, it is more natural than the property of being alive or being dead. However, the claim that a property is natural does not entail that it is necessary. Additionally, it is not necessarily the case that being alive or dead is less natural than being alive; generally, as I briefly noted in the previous section, it is not obvious that disjunctive properties are less natural than non-disjunctive properties. For a discussion, see Dorr and Hawthorne (2013).

[91] Since somaticists can admit that there are particles arranged dead-oragnism-wise, the advantage might not be ontological. Unlike the organicist, the somaticist thinks these particles form a composite object.

[92] For more on the problems of plural quantification and plural reference for the purpose of paraphrasing ordinary statements about ordinary objects into plural statements about simples, see Uzquiano (2004).

[93] The organicist might also raise a related worry. Being alive is a natural property. Furthermore, it is more natural than the property of being alive or being dead. However, it is not necessarily the case that being alive or

4. Informativeness

The organicist can argue that so far I have defended the somatic view in a way that leaves many details out of the picture. On the face of it, coming from the organicist, this is a strange complaint. Note that in order to fully capture laws that quantify over living and dead organisms, the organicist would have to specify conditions under which some particles arranged corpse-wise bear the right relation to the living organism they result from. If she cannot do so, it is a strike against her.[94] However, if she can give such conditions for the paraphrasing to be systematic, then the somaticist may argue that these are the conditions under which a corpse exists and is identical to that previously living organism. If it is possible to specify informative conditions that the particles arranged corpse-wise must meet in order to bear the right kind of relation to the living organism they result from, the somaticist can claim that these conditions hold for the corpse. So to the extent that the organicist can say something informative about particles arranged corpse-wise, the somaticist can say something informative about the corpse.

However, the organicist might argue that my defense of somaticism does not specify *any* persistence conditions for somatic organisms, and while organicism is not perfect with respect to law satisfaction, somaticism is imprecise, or at least not very informative. For instance, the organicist may claim that because I did not defend any particular persistence conditions, or say anything more specific than that dead animals

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dead is less natural than being alive; generally, it is not obvious that disjunctive properties are less natural than non-disjunctive properties. For a discussion, see Dorr and Hawthorne (2013).

[94] Note that the problem arises for the corpse concurrentist, and even more obviously for the corpse creationist, since all the uncertainties about organism persistence will arise for her in the form of puzzles about corpse persistence.

exist and are identical to the once living animals they result from, my view stays silent on a number of cases that the organic view can help us with. Take the example of what can count as a *part* of the organism (alive or dead): can the organism have inorganic parts? If an animal is not necessarily alive, what prevents it from having inorganic parts, which do not participate in its biological life? While the organic view excludes the quantification over inorganic parts, my view, as of yet, does not say much about the matter. If my view is a genuine competitor on the field, it should be at least as informative as the organic view. If it isn't, the organic view is still the best candidate on the scene. To respond to this objection I will try to fill in these details, and in doing so also address the issue of inorganic parts. More specifically, I will suggest that the historic-dependence account can adequately fill in those details.

Recall that according to the historic-dependence view, when an organism is alive, it stays in existence because it is alive, whereas once an organism dies it persists through time because it *was* once alive (and specifically, because it had *that* particular life). Ayers defends such an account:

> Life is essential to the thing in so far as it is inconceivable that it (*this* thing) should have come into existence as a non-living thing. The thing exists, and exists as it does, with the structure and parts that it has, because it is alive. In that sense we can say that life is its natural principle of existence and unity. *But that is not to say that when it dies the thing itself will cease to exist: merely that an explanation of the existence and structure of the thing will then refer to a life that is over.* The continued unity of a plant or animal after death obviously cannot be attributed to its continuing life, but even before death the conditions of its physical coherence at any one time were laid down by previous, rather than current, life-processes. (Ayers 1991, 184 my emphasis)

If we adopt this kind of an account, then we can fill in the details required by the objector. First, the historic-dependence account is informative. It specifies persistence conditions of organisms and can therefore tell us whether or not a certain animal survives its death. It explains why an animal A1 at t_1 exists and importantly, it explain why an animal A2 at t_2 is identical to A1. If A2's existence and structure is spatio-temporally continuous with and is the result of (or appropriately caused by) a life that is over, which belonged to A1, then they are identical. Second, the account also produces the right results with respect to *parthood*. Suppose the organicist thinks that an artificial heart is not a proper part of the organism, because being inorganic it cannot participate in its organic life processes. There are various biochemical processes that proper parts of organisms participate in, that inorganic objects cannot participate in. The somaticist can say the same thing with respect to the living animal.[95] What about the corpse? Since it is no longer alive, is there a way to account for why the artificial heart is not a part of it? The somaticist can similarly argue that the artificial heart *did* not appropriately participate in any of the organic processes of the living animal and does not result from the organic processes of that life. Therefore, it is not a part of the dead organism.[96]

However, is the somaticist committed to the view that the corpse never acquires new parts that were not a part of the once living organism? As a corpse decomposes, many chemical reactions take place. Molecules enter as the organs liquefy, as microbes enter the dead organism, they produce substances like lactic acid and methane, gasses are

[95] And in fact, this is what Ayers has in mind: "…what was initially a foreign body becomes a part of the individual by coming to participate in the common life, as in grafting or transplant surgery. A plastic hip-joint, however, like a false tooth, can never become part of the individual." (Ayers 1991, 185).

[96] Of course, the organicist might claim that inorganic objects can be proper parts of an organism, if they adequately participate in the organism's life. The somaticist can agree. The point is that if the organicist has a good account of what counts as part of a living organism, nothing prevents the somaticist from adopting that account regarding living organisms.

also produced as the body decomposes,[97] etc. Here, the somaticist can develop two accounts. On one account, if these new parts were not a part of the life process of that animal immediately before it died, then they are not parts of the corpse. On another account, the somaticist can account for why these molecules *might* be parts of the corpse. The corpse results from an organism that was once alive, and is an object that undergoes various decomposition processes. Since it is essential to a corpse that results from a living animal to decompose, whatever participates in these processes of decomposition has the potential of counting as a part of the corpse. I will not attempt to work out a detailed account of this kind of an approach. I only want to suggest that the somaticist can, in fact, provide some detailed information regarding parthood to somatic organisms after they die, even if it cannot draw on anything the organicist says (since the organicist doesn't think corpses exist).

There is an additional worry regarding the informativeness of the somatic account. How much of the corpse must be intact for it to persist? It seems difficult to answer this question without considering some of the vagueness involved. For example, consider a corpse, which you slowly remove parts from (which you then burn into ashes or somehow dissolve). At some point – when you are left with a mere hand – the corpse no longer exists. This looks like a Sorites series, and therefore seems like a case of vagueness. However, putting the issue of vagueness aside, what can I say about how much of the corpse persists? If many cases are unclear on my view, is that a strike against it? It seems that lack of clarity about certain cases is not necessarily a strike against it, for two reasons. First, there are analogous problem cases that the organicist also faces. Take

[97] For instance, "a significant component of these gasses is hydrogen sulfide (H2S), a small molecule that readily diffuses through the body. Hydrogen sulfide will react with the hemoglobin in blood to form sulfhemoglobin" (Goff 2009, 25).

the following problem cases: (a) how small can an animal get? (b) what happens if you cut the animal in two in some way (e.g. fission)? Both (a) and (b) are puzzles that are not unique to the somaticist. For example, the organicist may respond to the first puzzle by claiming that the animal can get as small as its brainstem. However, the brainstem view is problematic and Olson (who was the leading proponent of the brainstem view) no longer takes himself to be committed to it. It seems that if the organicist rejects the brainstem view, she cannot respond to (a) without appealing to vagueness. Similarly, the case presented by the second problem case is clearly a problem for everyone: much like the somaticist, the organicist also owes us an account of what happens to an organism at fission.

However, one might further argue that the organicist can still say that the organism ceases to exist at death, whenever that happens, whereas the somaticist does not have an account of when the object ceases to exist. There are two possible responses for the somaticist. First, the corpse (the or the organism) ceases to exist at dissolution. It might be unclear when that occurs. For instance, it is unclear whether a rotten corpse that still has some shape is the original organism. However, there is also unclarity for the organicist account with respect to death, e.g. a human organism with no functioning lungs, heart and a dying brainstem. Moreover, just like there *are* clear cases of death, there are also *clear* cases of dissolution. Perhaps the organicist has less unclear cases, and the somaticist has a greater number of unsettled cases or a longer time span where there is uncertainty regarding existence. The somaticist can concede that this might be a slight cost of the theory. However, when one takes everything into consideration, it is still

better to give an unclear verdict than a verdict that is clearer but on the wrong tracks (e.g. by relying on the functioning brainstem as a criterion for existence).

In the next section I will turn to the strongest objection against my argument for somaticism. According to this objection the concept of an organism is a natural kind concept, and as such, things falling under it are unlikely to have disjunctive persistence conditions. However, if somaticism is correct, it seems unavoidable that organisms have disjunctive persistence conditions. Therefore, somaticism cannot be right.

5. The objection from the naturalness of disjunctive persistence conditions

Recall that one of the main ways to specify the persistence conditions of animals, such that they survive their death is the historic-dependence account. If we attempt a more precise formulation of the account, the persistence conditions of organisms would be disjunctive. Olson gives the following formulation of the account:

> If x is an organism at t and y exists at a later time t*, x = y if and only if either i. y is alive at t* and the event that is y's life at t* = the event that is x's life at t, or ii. y is not alive at t*, y is composed at t* of a sufficient proportion of the particles that compose x when x dies, y's particles at t* are arranged at every time between x's death and t* more or less as they are when x dies, and at t* y is not a part of any other thing whose particles relate to x's in these ways. (Olson 2013, 91)

This formulation is consistent with Ayers' account given in the previous section, and is more accurate. So a somaticist might as well adopt it.

Olson identifies the following problem with the disjunctive persistence conditions given above:

> *The naturalness objection*: Disjunctive concepts do not carve at the joints. Disjunctive concepts gather "disparate phenomena to suit our interests" (Olson 2013, 92). *Organism*, however, is a natural kind concept and as such cannot be irreducibly disjunctive (2013, 92). These considerations do not entail that the persistence conditions of organisms are not disjunctive, but "it would certainly be surprising if they were" (2013, 92). In other words, it is highly unlikely that a thing falling under a natural-kind concept, which is not disjunctive, will have disjunctive persistence conditions.[98]

In a nutshell, the objection is that disjunctive persistence conditions are highly unlikely to capture the persistence conditions of things falling under natural kind concepts. *Organism* is a natural kind concept and as such is highly unlikely to encompass entities with disjunctive persistence conditions.

The argument can be divided into two main steps. The first step is intended to establish that *organism* cannot be irreducibly disjunctive:

> P1) If a concept carves at the joints, it cannot be irreducibly disjunctive (henceforth *No Disjunctive Joints*).
>
> P2) Natural kind concepts carve at the joints.
>
> P3) Therefore, natural kind concepts cannot be irreducibly disjunctive.
>
> P4) *Organism* is a natural kind concept.

[98] Olson also thinks that the historic-dependence account is uninformative (2013, 93). I address this concern in the previous sections of the paper. And in addition, the problem seems to be less grave than the naturalness objection. While the somatic view may be uninformative about what happens to a corpse in a range of cases, this should not in and of itself count against it. It is not necessarily a disadvantage of the account that it does not legislate on many of the hard. It may be that the cases Olson describes should be vague because our intuitions are not entirely clear about them.

C1) Therefore, *organism* cannot be irreducibly disjunctive.

Olson has little to say about what he means by an irreducibly disjunctive concept. He might mean something like the following.[99] Any property could be expressed by or referred to with a disjunctive predicate or captured by a disjunctive concept, so it is possible to construct a disjunctive concept for any property. For example, take the predicate 'grold or gral': 'grold: refers to the property of being green and discovered at least 300 years ago and 'gral' refers to the property of being green and not being discovered at least 300 years ago. Presumably, we can express this disjunction by simply using the predicate 'green'. The latter disjunctive expression is arguably not irreducibly disjunctive.[100] Presumably, the disjuncts are compatible, and perhaps some are better ways of referring to the property of being green. By contrast, an *irreducibly* disjunctive concept can only express a property that cannot be perspicuously expressed by a non–disjunctive concept.[101] For instance, the property of being grue must be expressed by a

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[99] Olson does not specify how he construes the relation between predicates, concepts and properties. I do not wish to assume any particular theory about their relation here. All Olson needs to assume is that if the concept of an organism is disjunctive, or if the property is disjunctive, then the persistence conditions that apply to things falling under that concept, or instantiating the property, are likely to also have disjunctive persistence conditions. If this assumption is false, it's all the worse for Olson's argument.

[100] Maybe the disjuncts are just coextensive, and the property of being grold is not the property of being gral. But it is at least plausible that the disjunction can be non-disjunctively expressed to refer to the same color property.

[101] According to Lewis, a property can be more or less natural (although a perfectly natural property cannot be more or less perfectly natural): "Some few properties are perfectly natural. Others, event hough they may be somewhat disjunctive or extrinsic, are at least somewhat natural in a derivative way, to the extent that they can be reached by not-too-complicated chains of definability from the perfectly natural properties. The colours, as we now know, are inferior in naturalness to such perfectly natural properties ass mass or charge; grue and bleen are inferior to the colours;…" (Lewis 1986, 61). So we can determine how natural a property or relation is by examining the length of the definition it can be given in a perfectly natural language, "a language in which all predicates stand for perfectly natural properties and relations" (Sider 2011, 154). Sider agrees with the basic approach, but argues that mere definitional length is not an appropriate measure. For instance, we can also think about the degree of definitional disjunctivity in order to determine whether a notion is more or less natural. The more disjunctive the definition is, the less natural the property or relation is (Sider 2011, 155). While presumably, the language used to talk about organisms does not contain only perfectly natural properties and relations, the spirit of the objection is the same.

disjunction (i.e. it has disjunctive application conditions): the predicate applies to all things examined before t and are green, and to other things in case they are blue. So things falling under the concept grue are either green before t or otherwise blue (Goodman, 73). While 'grue' is not a disjunctive expression, it is not a perspicuous way of expressing the concept.

But what does this have to do with Olson's original complaint that things falling under natural kind concepts do not have disjunctive persistence conditions? One might complain that the claim that something can be alive at one time and dead at a later time does not entail that it has disjunctive persistence conditions. Perhaps, even if the property of being an organism is disjunctive, or if the predicate that captures it is disjunctive, the persistence conditions themselves can be perspicuously expressed in non-disjunctive terms. In that case, Olson's argument cannot get off the ground. For the argument asserts that the problem is that if the somatic view is true, then the persistence conditions of organisms are highly likely disjunctive. However, if the best somatic account of persistence is the historic-dependence account, which is disjunctive, then Olson's argument is a serious challenge for the somaticist.

The second step in Olson's argument, against disjunctive persistence conditions, relies on C1 and goes as follows:

P5) If the best somatic account of organism persistence - the historic-dependence account - is true, then organisms have disjunctive persistence conditions.

P6) *Organism* cannot be irreducibly disjunctive (the conclusion from P1-P4 above)

P7) If *organism* cannot be irreducibly disjunctive, then organisms don't have disjunctive persistence conditions.

P8) Therefore, organisms don't have disjunctive persistence conditions.

C2) Therefore, the historic dependence account is false.

Olson holds that P7 is highly likely to be true. Although he allows that some not irreducibly disjunctive concepts may have disjunctive persistence conditions, he thinks that *organism* is highly unlikely to be among them. Instead, Olson argues that organisms cease to exist at death. If they do, their persistence conditions are not disjunctive – we can account for their persistence in terms of their lives, and once they are no longer alive, they simply cease to exist. Since dead organisms do not exist, there is no corpse to account for.[102]

6. *A response to the naturalness objection*

For the sake of the argument, assume that the property of being an organism is instantiated by both living and dead organisms, and that organisms have irreducibly disjunctive persistence conditions. If we assume this much, then we can also suppose that *organism* is an irreducibly disjunctive concept.[103] Does this mean that the property of

[102] Note that the organicist approach has the virtue of avoiding not only the naturalness objection, but also a view on which a new object – a corpse – comes into existence when the organism dies, as well as the view that this object that remains after death was concurrent with the organism all along.

[103] One could question the entailment from having disjunctive persistence conditions to being a disjunctive concept. After all, even *grue*, which has disjunctive application conditions, does not necessarily have disjunctive persistence conditions (arguably, we can express the persistence conditions in terms of a conjunction: having the color green before t and the color blue after t). So having disjunctive application conditions does not *entail* having disjunctive persistence conditions. However, we could argue that having disjunctive persistence conditions implies having disjunctive application conditions. For example, if an organism's persistence

being a somatic organism is not natural, or less natural than the property of *being an organic organism*? The previous considerations suggest that this is not the case.

The property of *being a somatic organism*, which is instantiated by both living and dead organisms, is at least as natural, if not more natural, than the property of being an organic organism. For it is able to play the naturalness roles relevant for a property like being an organism: it figures in various biological laws. So even if organisms have disjunctive persistence conditions, this does not undermine the claim that the property of *being a somatic organism* is natural. If this property is natural, then the concept of an *organism* that expresses it carves at the joints.[104] This result undermines the *No Disjunctive Joints* premise (P1), according to which if a concept carves at the joints, it cannot be irreducibly disjunctive. Since we already established that the property of being a somatic oroganism is natural, being expressed by an irreducibly disjunctive concept does not make it unnatural. Since the *No Disjunctive Joints* premise is undermined, the argument for the claim that it is highly unlikely that dead organisms can be identical to living organisms is unsound.[105]

Conclusion

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conditions include the disjuncts of being alive and being dead but resulting from that life, then the application conditions will also be disjunctive (something will be an organism whenever it satisfies one of the disjuncts). And arguably, disjunctive application conditions do imply that a concept is disjunctive.

[104] Of course, the claim here is not that *being a somatic organism* is a perfectly natural property, merely that is at least as natural as the property of *being an organic organism*.

[105] Another virtue of the preceding defense of somaticism is that it bypasses the following, related problems. One reason to accept the Termination Thesis is that there are various asymmetries between living organisms and corpses. For example, Hershenov (2009) suggests that whereas a living organism may assimilate various parts in a particular way, which may involve incorporating these parts into the organism's metabolic processes, a corpse cannot do so (see Hershenov (2009) and LaPorte (2009) for a thorough discussion of the significance of these asymmetries). While some have tried to argue that we can brush away these asymmetries by appealing to some higher principle that both living organisms and corpses obey (LaPorte 2009), we can bypass the need to specify such a principle by showing that these asymmetries do not undermine the naturalness of the property that the persistence conditions track.

If the preceding considerations are correct, they show two things. First, the property of being a somatic organism– even if it necessarily involves disjunctive persistence conditions – is pretty natural, and arguably more natural than being an organic organism. Thus, the somaticist conception of organisms is superior to its organicist rival. Moreover, even if the organicist only concedes that the somatic notion is merely just as natural as the organic one, parsimony considerations still favor somaticism. Second, somaticism can be informative regarding the persistence and existence conditions of organisms, as well as the conditions for something being part of an organism. While organicism may deliver a greater number of clear verdicts regarding various cases than somaticism, it still fails to deliver clear verdicts in a variety of cases. The possibility that somaticism may face more cases of unclarity should not count against it, at least not as long as the organicist also faces a variety of unclear cases. Judith, in this case, is right to say that Romeo is dead.[106]

[106] For helpful comments on this paper, I would like to thank Andreas Blank, Berit Brogaard, Bartlomiej Chomanski, Simon Evnine, Mark Rowlands and Amie Thomasson.

Chapter 3: Reviving the Body: What are bodies? What are we?

The view in a nutshell: In this chapter I present what I call *the new bodily view*. According to this view, I am identical to my body. The body, however, is not simply identical to the human animal. Rather, the body is composed of the human animal, as well as psychological properties, like the property of having a first person perspective and the property of being self-aware (in some minimal sense, at least). On my theory I survive just in case the body survives. And the survival of the body depends neither only on brute physical survival, nor on purely psychological continuity. Instead, I will account for the survival of the body in terms of the persistence of the physical and mental properties it has. More accurately, the persistence of the body will be given in terms of the persistence of the property instances (or tropes) that are essential to it.

The main argument in the chapter: The general argumentative strategy will be as follows. The main contenders in the field are constitutionalism and animalism.[107] Animalism is the view that we are identical to human animals. Constitutionalism is the view that we are constituted by – and not identical to – human animals. Both views face certain problems. While animalism is theoretically simpler, much of it does not mesh well with our intuitions. For instance, according to (organic) animalism we can survive the annihilation of large parts of our brains, so long as the human animal remains alive. The constitution view allows us to keep our intuition that we are necessarily embodied, but that some psychological features or mental processes also matter for our survival. However, the view is less simple and parsimonious than animalism. And it faces a variety

[107] According to Madden the principal rival of animalism in recent personal identity debates is constitutionalism ("Thinking Parts").

of puzzles that animalism does not face. Of course, issues surrounding personal identity are hard to decide in general. There aren't any decisive arguments in this area. Theory choice works as reflective equilibrium between intuition and theoretical considerations (e.g. parsimony, simplicity, how the view solves puzzles, whether it generates any extra metaphysical paradoxes that other views do not generate). In this chapter I hope to show that the new bodily view better balances intuition and theoretical considerations than its main competitors. I will do this by showing two things. First, I will show that the new bodily view fares better than animalism on the intuition score, and no worse than constitution. Second, I will show that the view fares better than constitutionalism (or some kinds of constitutionalist views, in particular Baker's) on the theoretical score, and just as well as animalism. Given the balance the view achieves between intuition and theoretical virtue, the view is better than both animalism and the constitution view.

In addition to the leading contenders I just described, there are also four-dimensionalist accounts of personal identity. But since my account should be read as a three-dimensionalist account, I will put those accounts aside. If I succeed in showing that the view I develop is the best three-dimensionalist account of personal identity, we can then measure it against four-dimensionalist accounts.

Chapter overview: In what follows, I will first position my view with respect to the discussion in the previous chapter, and with respect to two very broad camps in the person identity literature. I will then present some of the main sources I draw on in developing it. I will then discuss some of the background of the debate by presenting some views in the vicinity of mine, in order to distinguish them from own view. Lastly, I

will go over some problems in the personal identity literature to show that my view is superior to these close cousins.

Situating the view

In the previous section/chapter I argued that we have a good reason to favor the somatic view, i.e. the view that dead animals exist and are identical to the living animals they result from. However, I haven't said anything to answer the question "what am I?", and the somatic view itself does not entail any particular answer to this question. For instance, an animalist – an adherent of the view that *we are identical* to human animals – will argue that if there are dead animals, then it is possible for us to "survive" death as corpses.[108] We can call this view somatic animalism (following Blatti, 2014 SEP). My view is not a version of either somatic animalism or its rival, organic animalism, according to which animals (we) cease to exist when they die. And, although it bears initial resemblance to views that identify us with material bodies with brute physical persistence conditions (e.g. Williams 1970, Thomson 1997), it is also not a version of such views. According to these views, we are not identical to animals, but to material bodies. And while it is unclear what the relation of such views is to animalism, it is clear that on these views our identity through time does not consist in any kind of

[108] Mackie (1999b), Feldman (1992) and Thomson (1997) think that we can become dead people. Someone like Olson, on the other hand, would argue that we can become dead animals, even if we no longer fall under the phase sortal 'person'.

psychological relation.[109] My view belongs neither to the animalist camp, nor to any kind of *purely* physical continuity camp.[110]

The new bodily view tries to capture some elements both from physical and from psychological views. But one may be skeptical that such an attempt could work. For instance, according to Olson, one may think that both mental and physical continuity is needed for survival, or that either one would suffice without the other. However, he argues that these kinds of views will usually end up falling into the psychological-continuity camp or the physical-continuity camp, because in a variety of cases we cannot affirm both the psychological-continuity intuition and the physical-continuity intuition consistently.[111] To demonstrate this, he offers a test case:

> Imagine that your brain is transplanted into my head. Two beings result: the person who ends up with your cerebrum and most of your mental features, and the empty-headed being left behind, which may perhaps be biologically alive but will have no mental features. Those who say that you would be the one who gets your brain usually say so because they believe that some relation involving psychology suffices for you to persist: they accept the Psychological Approach. Those who say that you would be the empty-headed vegetable say so because they take your identity to consist in something entirely non-psychological, as the Somatic [i.e. physical] Approach has it. (Olson, 2015)

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[109] For a discussion of the division between the main camps in he debate see Olson (2015).

[110] Proponents of somatic animalism include Ayers (1991: 278–292), Carter (1984; 1999), Mackie (1999b) and Feldman (1992). Olson (1997), van Inwagen (1990), Madden (2011; forthcoming) and Merricks (2001) are organic animalists. Snowdon, one of the first proponents of animalism, does not commit himself to either the organic or the somatic view of animal persistence. Williams (1956–7, 1970), and Thomson (1997) are proponents of bodily, but non-animalist views of personal identity. Or more accurately, it is unclear if they think the body is identical to the human animal. Both views were formulated at a time when animalism was not as well known and as widely discussed. Either what they meant was a form of animalism or some general notion of a physical thing. If the latter understanding of their views is true, then we are physical things, maybe not of any particular kind. Williams (1956-1957) has a brief but suggestive discussion about how a person's facial expression is part of his personality, which seems to indicate more than brute physical views. His view may be a bit closer to my view than Thomson's, because he has in mind some indirect connection between the body and some psychological features. However, his account of the body is not full enough for a more detailed comparison. Thomson does not discuss what the body is (i.e. whether it is identical to a human animal). But since she thinks persons can be dead (just as there are dead cats, there are also dead people), my view seems to be different from hers.

[111] Of course, Olson is speaking more specifically of biological views. But the point may be taken to apply to physical views more generally.

The test case is supposed to show that the reason one judges the case one way or another will tend to rely on whether one accepts the psychological view or the physical view. Furthermore, the psychological view and the physical view are mutually exclusive in this example – assuming one can only be either the empty-headed being or the person that ends up with the original cerebrum. Amy Kind raises a similar worry concerning views that try to affirm both the psychological continuity intuition and the physical continuity intuition, which she calls hybrid views (2015). In order to properly address her worries, however, it is necessary to lay out the new bodily view in more detail. After I present the details of the new bodily view I will show how we can avoid her worries about hybrid views.

According to the view I will defend, we can find a middle-ground view that does not collapse into one of these two positions. The middle ground view I advocate reintroduces a concept that fell out of favor in the personal identity debate, namely the concept of a *body.*[112] The concept was largely replaced – at least in the animalist camp – by the concept of a human animal, mainly due to arguments by van Inwagen (1979) and Olson (2006) to the effect that the concept is too obscure to be fruitfully exploited by philosophers. If my view is correct, it will also succeed in reviving the concept of a body. Some philosophers[113] hold (or at least implicitly assume) that the body and the human animal are identical. However, if it can be shown that the two differ in some of their properties, it is wrong to identify them. On my view the body is not identical to the

[112] For instance, Bernard Williams talks of a body (1970); as well as Thomson (1997) and Burke (1997).
[113] E.g. Baker (2000), Thomson (1997), Williams (1970). Outside the personal identity literature, this is an uncontroversial assumption (see Gallagher 2005 for an example).

organism. For this reason, there is a theoretical need to introduce this old-new concept into the debate.

According to the new bodily view I am a body. While this may sound initially like a physical view, the view is not purely physical. According to my view a body is composed of a human animal and some mental (and physical) properties. So it should now be clear why I call my view the new bodily view, rather than just the bodily view: it should not be taken to fall into the camp of old bodily views like Williams's and Thomson's (which are purely physical). The theory may be construed as a kind of constitution view, if by constitution views we mean those that propose a relation other than identity between the human animal and the person. However, unlike Baker I do not identify the human animal with the body. Instead, the body is construed as a composite object that is partly composed of the human animal. So unlike Baker, I understand constitution in mereological terms.[114] If the reader thinks that accepting a non-identity relation between two collocated (or materially coincident) objects is sufficient for a theory to be called a constitution view, then the view may be called just that. Otherwise, it may also be called a mereological view.

The main intuition that motivates material coincidence of distinct objects is as follows. Intuitively, there is an animal that would survive the complete and irreversible

[114] My view is also different from Thomson's. First, Thomson thinks that we are identical to our bodies, which she identifies with human animals (1997). Accordingly, she thinks that since there are dead animals, there are dead people. I construe the relation between the body and me as identity, but the body is not identical to the animal. So there are no dead people, although there are dead animals. I do not persist through death as a corpse, even if the human animal does. Second, while Thomson does not think that constitution is mutual parthood, she thinks it involves mutual parthood (1998), which my view can avoid. For more on why we might be best to avoid any sort of mutual parthood, see Evnine (forthcoming). In addition, she rejects uniqueness of composition (the principle according to which no two mereological fusions ever have the same parts), whereas the property parthood view needn't reject it (1998; see Gilmore 2014 for the view that while the rejection of Uniqueness is inconsistent with the principle of weak supplementation, it is consistent with Quasi-supplementation, the principle according to which "if a thing has a proper part, then the thing has parts that are disjoint from (fail to overlap) each other, though not necessarily from the first proper part" (Gilmore, 2014, 168).

loss of consciousness. Intuitively, there is a person who would not survive that. So the animal and the person have different persistence conditions. Therefore, they are two distinct (and materially coincident) things. This argument gives prima facie reason to accept a coincidence view. As I claimed earlier, the view I develop will deliver theoretical advantages similar to animalism and it also satisfies the intuition behind constitution, or material coincidence, views.[115]

Exploring the new bodily view in more detail

The new bodily view is based on a general theory about the relation between objects and properties, and it assumes that objects can be completely decomposed into properties.[116] The latter claim, however, does not entail that a human animal is not a proper part of me and that I therefore have no material parts. To see why, we can step back and consider an important point about the general theory between objects and properties. This general theory may be construed as a kind of bundle view. Note, however, that a bundle theorist is not committed to the claim that every part of every object is a property. To see why, consider the following analogy: I, as well as my hand, can be completely decomposed into atoms. But that does not mean that I don't have a

[115] Of course, one may wonder how two things can be microphysically identical without being indistinguishable with respect to their macrophysical properties. But this is simply raising the familiar grounding problem. I cannot address this problem on the scope of the dissertation. What is important here is that there is prima facie reason to accept the material coincidence view. In the rest of the chapter I will develop a view that respects these intuitions that give us this prima facie reason and argue that on holistic grounds this view is better than the view that resists the intuition – namely animalism.

[116] The view according to which objects have property parts has been defended by D.C Williams (1953), Goodman (1951/1966), Leonard and Goodman (1940) and Campbell, who refuses to call properties parts of object, but holds an otherwise similar view (1981; 1990). More recently Simons (1994) L.A Paul (2002; 2006) and Kris McDaniel have defended the view (2001).

hand or that my hand does not exist. Analogously, I can be completely decomposed into properties, but I still have a material part.

We can call this the *Property Parthood View*. There are various ways of filling in the details that my view leaves open, and I remain neutral between them: I don't choose between bundle and substratum views of objects, and I also don't choose between a universal realist and a trope view. I am interested in particularized properties, and it does not affect my view if these are the only properties there are, if there are *also* universals, or if these property parts are themselves universals rather than particularized properties standing in some relation to universals.[117] However, for the sake of simplicity I will proceed by assuming that the parts of objects are tropes (when I use the word property in discussing the new bodily view, it should be read as a particularized property, unless otherwise stated). It should be clear that the view I develop is reinterpretable in other terms – e.g. in terms of property instantiations (of universals) – so nothing substantive depends on the assumption that there are tropes and that objects are composed of tropes.

According to the Property Parthood View the relation between the tropes that are parts of an object is compresence or togetherness. I will treat this relation as primitive. Does an object contain a substratum, apart from the trope parts? A substratum is that which underlies the properties (the tropes) of an object, or that to which they are attributed. According to some theories on which objects have property parts, these property parts are attributed to or had by a substratum. Other theories deny the existence of substrata. According to some theorists any composite material object has a substratum,

[117] If there are universals, then my view can be reformulated as follows, depending on whether we take the universals themselves to be parts of objects, or whether their particularized properties are parts of objects. Either (i) The body includes particularized properties as parts, which stand in some relation to universals (ii) the body includes universals as parts. If, on the other hand, the genuine kinds of things are tropes (particularized properties), then property instances are tropes, and tropes are proper parts of bodies. For more on views on which universals are parts of objects see L.A Paul (2002) and Carmichael (2016).

while others deny this claim.[118] I will remain neutral on this issue, since it does not matter for the theory whether or not there are substrata in addition to the property parts. As I said, I remain neutral on many issues, including whether or not there is a substratum. However, for the sake of simplicity of exposition, I will proceed by tentatively assuming that there is no substratum, although the theory could also accommodate substrata. If the theory is reinterpreted in terms of tropes and substrata, then we can treat the relation between the tropes that are parts of objects as non-primitive, since we can then define compresence as the relation that holds between tropes had by a single substratum. Note that on this picture, having would be a primitive relation, which on the bundle view is defined in terms of compresence.

The claims that the new bodily view *is* committed to are the following. First, there are human animals and there are bodies, and the human animal is a proper part of the body. Both the human animal and the body are composed of tropes, and possibly of a substratum. Second, some tropes are only parts of the body: having the first-person perspective, being self-aware and being bodily aware. In addition, since the body has the human animal as a proper part, it also has the tropes had by the human animal (given the transitivity of parthood). For instance, the body has the tropes of being a human animal, being a blood circulator etc. as proper parts. Third, the persistence of some of these property instance parts (e.g. having the first-person perspective, being self-aware, being bodily aware) is necessary for the body to exist and to persist. Note that this is a somewhat non-standard understanding of the body. Normally, the body is construed as either identical to the human animal, or as a non-living human animal. My view is more

[118] Martin (1980) thinks that there are substrata, while Williams (1953) holds a no-substratum theory. Simons (1994) has a "mixed" view on which the substratum's role is played by a trope nucleus, rather than by a substratum.

similar to phenomenological conceptions of the lived body (Leib). The body is a physical object that is characterized by being conscious, self-aware and bodily aware. These latter characterizations are properly understood as property instance parts of the body.

One may raise the following worry about the second commitment. If the body has the property being a human animal as a part (given that the human animal has it, and the human animal is a proper part of the body), then isn't the body a human animal? If having a trope as a part implies having the property the trope is an instance of, then it would seem to follow that the body is a human animal. Worse yet, if the body is a human animal, and the human animal is a human animal, it seems that there are two materially coincident human animals. However, it is possible to address the worry by distinguishing between two ways to understand what it is to have a property. On a deflationary reading of being an F, if x has being an F as a part, then x is an F. In that sense the body is an organism. However, this is not an interesting sense of being an F. To see why, consider an analogy: there is a cup, a table, and a fusion: the table-cup. On the deflationary reading of being an F the table-cup is also a cup, since it has the cup as a proper part and the cup has the property of being a cup. Similarly, since I have a head, and my head has the property of being a head, then I am also a head. The interesting question is whether the body has the persistence conditions associated with the kind **organism** (in what follows I will use bold letters for kinds). On the stronger reading of being an F, associated with this question, we do not have the persistence conditions associated with the kind **human animal** (or **organism** more generally). The body is a body in the sense that it has persistence conditions associated with body. It also has the property of being an organism, but it does not have those persistence conditions.

According to my view I am identical to my body. A body is a composite object that has the human animal as a proper part. In addition, the body has other particularized properties as parts that the animal does not have. So I am composed of many properties, some of which are properties that are proper parts of the human animal, and some of which are additional properties, which the human animal does not have. One might balk at the idea that the human animal is a proper part of the body. After all, the human animal and the body that it is a proper part of seem indistinguishable, so why is the human animal a proper part of the body rather than identical to it? If we accept the Property Parthood View, then the claim that human animals are proper parts of bodies should no longer strike us as so unintuitive. For according to the view the body has additional, non spatio-temporal parts, which do not compose the human animal.

Does the organism have the property of being conscious? If it does, does the view entail that both the body and the organism are conscious? According to the new bodily view the organism has many properties. Whenever some of those properties are instantiated, namely the ones that realize consciousness, consciousness is instantiated. However, it does not follow that the organism is the instantiator of consciousness. While there is a tight connection between the properties of the organism and consciousness, it doesn't follow that the organism has to be conscious. This consequence is not as unintuitive as it may initially strike one. We can distinguish between being conscious and having consciousness in something (Burke 2003), or between having thoughts and hosting them (Robinson 2006). For example, Burke distinguishes between being the container of a thought, or thought occurring within something, and being a conscious being. If we draw on his distinction, the container of the thought is the organism, while

the conscious being is the body. We can put this claim in terms of the conceptual framework I am using: from the fact that x has F and F realizes G, it does not automatically follow that x has G. To see why this is plausible, consider the following analogies: one some views, pregnant women have their fetuses as parts. Surely, however, they do not have the fetus's mental states as parts, despite containing them. In addition, imagine someone getting an organic prosthetic limb that is, in fact, a very small leg-shaped person. If prosthetic limbs can become parts of the body, so can this person. Yet by having it as a part, I don't have the person's mental states, even though the mental states are realized within my boundaries. Or imagine that one of my blood cells becomes conscious; despite having it s a part, I don't have its consciousness. So there is a difference between being the container of thought and being its instantiator.

One might object, however, that the case seems different with the animal. One reason for the difference between the human animal case and the examples I give above is that the animal is not a spatial proper part of anything, but only a part in the sense that it lacks some of the relevant properties. In order to address this worry I should clarify the dialectic at this point. My concern is blocking the following inference: whenever some of the organism's properties are instantiated, consciousness is instantiated; therefore, the organism is the instantiator of consciousness. The line of thought I am blocking is analogous to the following line of thought: if a head (which contains a functioning brain) has properties that realize consciousness, it does not follow that *the head* is conscious, it is merely the container of consciousness. If this consideration works in the spatial parts case, it should work for an ontology that allows for property (or more specifically trope) parts. I am not trying to give a positive argument that the part (in this case, the organism)

is not conscious, but to block a positive argument that it is. And arguably, on property part ontology, the best (or one of the best) argument for thinking that an organism is conscious is analogous to the argument for thinking that a head is conscious.

So far I outlined the general Property Parthood View, which the new bodily view draws on. On the new bodily view, the human animal is a proper part of the body, so the view clearly construes them as distinct.[119] However, I have not yet showed that we should believe the distinctness claim.[120] I need to show that there are properties that the human animal and the body do not share. For instance, while the body has properties like being self-aware and being bodily aware as parts, the human animal does not. The previous chapter, in which I argue for the somatic view, should convince us of that much. Another difference between the organism and the body has to do with the kinds of object-parts they can have: while the organism arguably cannot have inorganic proper parts, the body can.

The preceding outline of the view is, of course, not yet detailed enough. Before I fill in the details of the view, however, I will motivate the framework assumed by the new bodily view more generally. I will then motivate the view that the body and the organism are distinct, by filling in the details of the view. Specifically, I will examine the following issues: (i) the essential properties of bodies and of human animals; (ii) the persistence conditions of bodies and of human animals; (iii) the conditions for being parts of bodies and of human animals.

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[119] Unlike some constitution theorists, I am using 'distinct' to just mean 'not numerically identical'. The term 'distinct' is not meant to suggest that the objects do not stand in some intimate relation to each other.

[120] The response to this question is not meant to be a response to the grounding problem, i.e. the problem of explaining why the body and the human organism are distinct despite sharing their material properties (at least under normal circumstances).

Motivating the property parthood view

Suppose one argues that one can circumvent the metaphysical apparatus of the new bodily view, namely the Property Parthood View, by claiming the following. Two concepts are involved in our intuitions about ourselves. First, there is a concept of a kind of thing bound up with a biological life, biological integration, etc. Second, there is a concept of a thing related to the person's field of action (including desires, beliefs, sensations etc.), call it the body. Very often the same object falls under these concepts, but it needn't always be the case, since the concepts are not equivalent. In other words, often, the body (that includes desires, beliefs) just is an organism, but sometimes the object that falls under the concept of an organism isn't the object that falls under the concept of a body. If we think that this account makes sense, why introduce the Property Parthood View to begin with and claim that organisms are parts of bodies? And why assume that the organism and the body are *never* identical by saying that they do not share all of their properties? This alternative account, on which the latter distinct concepts often have the same extension, seems both sufficiently explanatory and metaphysically simpler than the Property Parthood View, so we should prefer it.[121]

There are two responses to this line of worry, depending on how one understands the worry. The first response is more general and understands the objection as a worry about any competing view of animalism, while the second response understands the

[121] I thank Simon Evnine for raising this worry and for pushing me to think more deeply about it. There is a complication this worry raises: presumably, since the concepts are not equivalent, only one of them captures what we are. So even if we think that both concepts play a role in how we think about ourselves, presumably only one of them captures what we essentially are. For the sake of the argument I will ignore this complication.

objection as a worry about the Property Parthood View in particular and therefore explains the necessity of the Property Parthood View for the new bodily view.

First, one could argue that this line of worry is analogous to the following argument in favor of animalism.[122] Locke thought that the person is a conscious thinking being. But if we examine human animals, they seem like very good candidates for thinking conscious beings. Human animals are therefore the sorts of thing that Locke had in mind – the thing that has the property of being a person is just a human animal. Analogously, we can construct an argument for identifying the body and the organism. The body is conscious and has various additional mental properties and abilities (introspective ability, proprioception, and so on). The human animal is an excellent candidate to do all those things, so it seems to be a good candidate for being a lived body (of the kind required by the new bodily view). Therefore, why think that the organism and the body are distinct? If we understand the worry in these terms, i.e. as a worry about already having a perfectly good candidate for playing the role of the body, namely the human animal, then the worry is a general concern about constitution views, or non-animalist views. The general line of response would simply be an appeal to arguments in favor of constitution views, or in favor of pluralism rather than monism about the number of materially coincident objects. According to this line of response, the worry does not amount to an argument against the new bodily view or the Property Parthood View in particular. In order to address the worry, one should motivate the general view that there can be materially coincident objects and that constitution views are more plausible than animalism. It is not in the scope of the chapter to address the plausibility of pluralism rather than monism about materially coincident objects. However, one response to this

[122] This is one way of understanding Olson's line of thought in favor of animalism.

worry that is within the scope of the chapter is to show there are reasons to favor the new bodily view over animalism. The rest of the chapter, as well as the puzzle I develop in the next chapter, should convince the reader that there are at least some very good reasons to favor the new bodily view, which relies on the Property Parthood View.

The second response understands the objection as having to do specifically with the Property Parthood View. For the sake of the argument I will assume that the second objection is not concerned with the plausibility of constitution views vs. the plausibility of animalism, but with the need to introduce the Property Parthood View specifically. One may wonder why I need to introduce a mereological way of talking about bodies and organisms, given that we can simply talk about human animals having various mental features. The Property Parthood View may seem cumbersome and unintuitive, especially when we think about the alternative: animalism. It should be clear that the reason I accept the Property Parthood View is not that it is the best way to talk about constitution. So I do not introduce the Property Parthood View because I first and foremost think of the new bodily view as a constitution view. Instead, I am concerned with the relation between the organism and the body, and I cash out the relation in terms of property parthood. How this is related to constitution depends on what one thinks constitution is – this is an additional question that is tangential to my project.[123] The Property Parthood View has several virtues. First, it is ideologically parsimonious in comparison to some other constitution views. I do not have to assume a sui generis constitution relation, since I can do everything with a category-neutral notion of parthood. And since parthood is a clearer notion than constitution, the theory is arguably clearer than a theory that must postulate a

[123] Therefore, since my view does not claim that the property parthood view is the correct way to understand constitution, it can be accepted by those, like Evnine (2011), who think that composition – the part-whole relation – and constitution do not have a significant relation to each other.

sui generis relation.[124] Second, as I will argue at the end of the chapter, the property parthood view allows me to reduce different overpopulation puzzles to the thinking parts problem. And once I have a solution to this problem I have a solution to all overpopulation puzzles.

Body vs. Organism: the essential properties

Although the human animal can survive the loss of its mental properties, it clearly has mental properties at some point in its life (or at least, it typically does). And if human animals can instantiate mental properties, why not identify them with the body, which also has such properties? The main reason for rejecting this approach is that the animal and the body differ in their modal profiles. For instance, the animal can survive the destruction of its mental properties. The claim that the human animal does not necessarily have mental properties follows from the somatic account previously developed in Chapter 2. If animals can persist through death, surely they can persist through the loss of their mental properties, too. (The claim that human animals can persist through the loss of their mental properties would also follow from organicism: animals are essentially *living*, not mental, beings so they can survive the loss of their mental properties). However, the body must have these mental properties – it cannot survive without them. Recall that on this conception, the body is not simply the physical human animal, but an object that has other parts, namely particularized properties (tropes). Without some of these tropes, the

[124] In addition, note that other views in the vicinity are not less controversial than the property parthood view, e.g. hylomorphism. Furthermore, unlike Thomson, who defines constitution in terms of composition, the property parthood view does not rely on non-extensional mereology (for a defense of non-extensional mereology see Thomson 1998; Paul 2002). Baker also seems to need some controversial baggage, namely primary and derivative membership in kinds.

body does not persist. The trope of having the first-person perspective, as well as being self-aware is essentially a part of the body, but not a part of the human animal. This entails that typically the body does not persist through death. One exception might be mental or brain transfer cases, in which the necessary property parts persist, although the human animal does not. Given the differences in the modal profiles of bodies and human animals, it seems that we have reason to distinguish between the human animal and the body.

In the next section I will give more detailed persistence conditions of bodies, which rely on the persistence of tropes. I will also explain why, although much of the account can be recast in terms that do not involve tropes, at least one part of the account seems to be best captured in terms of tropes. For now, however, let me address a more general worry about this approach. One might be skeptical about this approach in general, by arguing that this account raises a worry about the persistence conditions it entails: how can particularized properties, or tropes, persist independently of the persistence of objects of which they are properties? However, once we get clear on what this worry amounts to, we should be convinced that it does not pose a threat to the view. Suppose one thinks that tropes can exist independently of objects or substrata (this is a Humean trope bundle theory, to which Campbell (1981) subscribes). In this case, the proponent of the new bodily view can say that the worry simply reiterates the view and is no worry at all. But the worry, one may respond, is not about the existence, but about the persistence of tropes: even if it is not problematic to say that tropes exist independently of particular objects, it is difficult to specify the persistence conditions of tropes independently of the objects that instantiate them. But it is unclear why one would insist on this condition.

According to some views, tropes are not individuated with reference to the object that has them. Instead, their individuation is primitivist: "For all tropes *a* and *b*, *a* = *b* iff *a* = *b,* and *a* ≠ *b* iff *a* ≠ *b*" (Maurin 2013). But if one can be a primitivist about trope individuation, one can also be a primitivist about trope persistence.

We can make the worry stronger. Suppose for the sake of the argument that a trope must be attached to an object: it cannot exist without being part of some object. The worry, then is that it is hard to see how tropes can persist without the objects they are attached to. There are three ways to think about trope persistence, two of which are consistent with the assumption that a trope must be attached to an object: first, tropes are strongly non-transferrable – once a trope is attached to an object, it cannot be attached to another object; second, tropes are weakly transferable – a trope must be attached to some object, but it can be transferred from one object to another; third, tropes are transferable – they do not need to have an object to attach to.[125] These are ways of thinking about trope persistence in the sense that they at least specify (non-exhaustive) necessary conditions for their persistence. For instance, if tropes are strongly non-transferrable, then we know that a trope T1 that belongs to an object O1 cannot continue to exist as belonging to object O2. If the worry has to do with the transferability of tropes, then it can only work if it assumes the strong non-transferability of tropes. However, since the view is far from obvious, the opponent of the new bodily view must say why we should favor it; the burden of proof is not on the proponent of the new bodily view. In addition, even if the strong non-transferrable view was true, it wouldn't follow that the persistence conditions of tropes cannot be specified without reference to the objects they are tropes of.

[125] For the first view see Lowe (2006, especially p. 26-27) and Mulligan, Simons and Smith (1984); for the second view see Cameron (2006), where he also attacks the strong non-transferability thesis; for the third see Campbell (1981).

Unlike the human animal, for something to be a body it must have two kinds of particularized properties: M-tropes ("M" for mental) and P-tropes ("P" for physical). 'M-trope' and 'P-trope' should each be understood as shorthand for a trope of a certain kind. I will henceforth refer to single particularized properties as an M-trope and a P-trope. I will refer to all the M-tropes and P-tropes that are parts of a body (and necessary for its persistence) as an M-cluster and a P-cluster. While I will not give an exhaustive list of necessary and sufficient conditions for what is included in a P-cluster and an M-cluster, I will characterize each group of properties. It will become clear that both properties are normally attributed to a rich notion of the body.

M-clusters include the following M-tropes: self-awareness, possession of the first-person perspective, bodily awareness. M-tropes are necessary for something to be a body. Furthermore, the M-tropes are dispositional. It is still part of the body in, e.g., sleep. Intuitively, it should be clear why the property is dispositional. We do not cease to exist when we sleep and come back into existence when we are awake again. We can see that dispositional properties might be necessary for a thing's existence by considering an analogy, e.g. to the property of being soluble in water. Much like the property of being soluble in water is essential to sugar, the property of being (dispositionally) self-aware is essential to us.[126] So the claim that we have some dispositional properties essentially should not worry us.

If other beings (like chimps or dogs) have the M-cluster, then they are also bodies composed by organisms. But it is not within the scope of my project to answer the

[126] Baker also understands the property of having the first-person perspective in dispositional terms (2013, 173-179).

question of whether other creatures are self-aware, and what kind of self-awareness, if any, they have.

As I mentioned above, the body must also have P-tropes as parts. Not anything physical can be a body. For example, if a mental property instance, previously had by a body, is now had by a laptop, the laptop is not thereby a body. In addition to a M-cluster, the body necessarily has a P-cluster. Being a P-trope involves being a possible vehicle for cognitive interactions with the environment and also for bodily awareness. So an object that has the P-trope as a part is able to interact with the environment and to be bodily aware. This does not entail that bodily awareness is a P-trope, or that having a P-cluster entails the possession of bodily awareness. The claim is much more modest: the possession of a P-cluster is a necessary, but not sufficient, condition for bodily-awareness. Much like the M-tropes, the P-tropes are dispositional. For example, while we sleep one could argue that we do not interact with the environment and are not bodily aware. The body does not cease to exist when we sleep.[127]

Body vs. organism: persistence

The body and the human animal have different persistence conditions. As I briefly noted above, the human animal can survive the loss of its mental properties. The body, however, cannot survive the loss of its mental properties. One way to explain why the human animal can persist through the loss of its mental properties is by thinking about

[127] In addition, one could also argue that things can have the P-trope in degrees. For example, perhaps one physical object is more apt to be a vehicle for exploring the environment than another object.

the somatic account. In the previous chapter I defended the somatic view of organisms, and in particular the historic-dependence account:

> If x is an organism at t and y exists at a later time t*, x = y if and only if either i. y is alive at t* and the event that is y's life at t* = the event that is x's life at t, or ii. y is not alive at t*, y is composed at t* of a sufficient proportion of the particles that compose x when x dies, y's particles at t* are arranged at every time between x's death and t* more or less as they are when x dies, and at t* y is not a part of any other thing whose particles relate to x's in these ways. (Olson 2013, 17)

On this account, human animals can persist through death. Obviously, at death there are no mental properties present in the human animal (properties like being self-aware, or being bodily aware). Since bodies, however, necessarily have these mental properties, bodies are not identical to human animals.

Unlike the organism, which needs to meet some particular biological conditions in order to exist and to persist, *body* is not a biological concept: bodies do not necessarily have human animals (or more generally organisms) as parts, although it may be necessary for some bodies to have their origin in human organisms, namely for those that as a matter of fact do have such origins. So if I originate as a human animal as a part, it is necessary that I originate as a human animal as a part**.** This, of course, does not entail that I must also continue to exist by having a human animal as a part: the material parts of the body can all be replaced (e.g. by inorganic parts), and I survive as long as I have the following tropes. I – or the body – have an egocentric perspective on the world. And I have that perspective necessarily. At least two properties need to be instantiated for that to be possible: (i) M-tropes (properties like being self-aware and being bodily aware) (ii)

P-tropes (properties like being a vehicle for cognition, for getting input and output from the environment and other physical body parts and for being bodily aware).

Unlike the animal, the body is composed of tropes that compose the human animal, plus some other tropes, e.g. being self-aware. Given M- and P-tropes, we can specify the persistence conditions of the body. On my view the body persists just so long as the mental and physical properties the body necessarily has persist. More precisely:

Body Persistence: Body B1 at t_1 = Body B2 at t_2 iff

(i) B1 has M1-cluster and P1-cluster at t_1,

(ii) B2 has M2-cluster and P2-cluster at t_2,

(iii) M1-cluster at t_1 = M2-cluster at t_2,

(iv) P1-cluster at t_1 = P2-cluster at t_2

A property cluster is identical to another property cluster iff their tropes are all identical. One might want an account of what it takes for a trope at t_1 to be identical to a trope at t_2. Take, for example, the question of what makes the trope M1 at t_1 = trope M2 at t_2. According to the nonrelational account of trope persistence, favored by Ehring[128], "tropes lack temporal stages: tropes are wholly present at each moment of their existence" (1997, 100). However, there is an alternative way to construe the relation between M1 and M2. According to the relational view of trope persistence, tropes have temporal stages. What it takes for trope stage T1 and trope stage T2 to be stages of the same trope is for them to stand in a certain relation to each other (Ehring 1997, 99). The relation may or may not

[128] I am focusing on Ehring's discussion of trope persistence because the issue has been neglected in the literature on properties. His seems to be the most worked out account.

be causal. And if it is causal, it may or may not exhaust the relation between the tropes (i.e. it may just be one component of the relation) (Ehring 1997, 98-100). If we apply the relational account of trope persistence to the issue at hand, we get the following account of trope persistence: M1 at t_1 is a temporal stage and M2 at t_2 is another temporal stage. And they are temporal stages of the same trope just in case relation R holds.[129] *Body Persistence* is formulated according to the non-relational account.

Although I am assuming a nonrelational account of trope persistence, for my purposes not much hangs on the difference between the two theories.[130] Furthermore, since I am not committed to any specific account of causation, I can say more about the conditions under which a trope persists, even if my account is nonrelational. Under what conditions can we take the relation between M1 and M2, and P1 and P2 to hold? We can give the following condition, which is not meant to exhaust a possible list of conditions: M1 at t_1 = M2 at t_2 when M2 stands in an appropriate causal relation to M1 and P1 at t_1 = P2 at t_2 when P2 stands in an appropriate causal relation to P1.[131]

Note that I have only given an account of the persistence of bodies in terms of trope persistence. I have not thereby given necessary and sufficient conditions for the persistence of M1 and P1. The account entails that a body can persist with different organisms as parts at different times, so long as M1 at t_1 = M2 at t_2 and P1 at t_1 = P2 at t_2.

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[129] Ehring is interested in a theory of causation, which he gives in terms of trope persistence. This is one of the reasons that such an account – on which the relation R is causal – cannot satisfy his desiderata for an appropriate account of causation, on pain of circularity. However, I am not committed to any specific account of causation, so my account is compatible with this account of trope persistence.

[130] It is not obvious that the relata are the same in the two accounts. On the non-relational account, M1 and M2 are tropes; on the relational account they are temporal stages that may or may not be tropes. For the sake of providing persistence conditions, however, it doesn't matter if temporal stages of tropes are tropes or not. So either M1 at t_1 is identical to M2 at t_2 or M1 (a temporal stage) at t_1 is related to M2 (a temporal stage) at t_2 in the appropriate way, which makes them two stages of the same trope.

[131] Since Ehring (1997) attempts to explain causation through trope persistence, he cannot accept this condition, for it would render his account of causation circular. However, since I do not subscribe to a particular view of causation, this condition is unproblematic.

Now we can see where and why the account requires the existence of tropes (as I promised in the previous section). Recall, the worry was that spelling out the new bodily view by relying on trope theory is unnecessary (and perhaps also unnecessarily cumbersome). The new bodily view should simply talk about properties in general, and not be committed to any particular account of properties. It might be helpful at this point to distinguish between two ways in which tropes may figure in my theory: (i) trope theory in the strong sense: the view that tropes can solve the problem of universals; (ii) trope theory in the weak sense: the view that there are tropes (and there are, perhaps, also universals). My concern is not (i), and the new bodily view only needs (ii). For example, I could remain neutral between trope theory that does away with universals, and Armstrongian universal realism. On the Armstrongian universal realist view for a universal to exist it has to have instances, and is located where all its instances are. Perhaps I could also speak of tropes in such terms: a trope is something that exists just in case a particular individual instantiates a universal.[132] On this view, tropes can exist along with universals. Furthermore, such a view is compatible with the claim that universals (rather than tropes) are fundamental, so my theory needn't take a stance on this issue.

To see how, and if, this might work consider the following example: The Cheshire cat is smiling. On a theory of tropes that also admits of universals, the cat's smiling is the property that exists iff the cat instantiates smiling. But if this is the definition of the trope, there are still no informative persistence conditions in terms of tropes. The trope is defined in terms of the property and the individual instantiating it, so

[132] If one is a Platonist, then properties can exist uninstantiated. This view seems unhelpful if we want to specify our persistence conditions in terms of properties. For this reason, I will only talk about universal realism.

we are back to the individual. The problem is that this kind of an account cannot provide very informative (and non-circular) persistence condition for the individual.

So it seems that for the new bodily view to give informative persistence conditions, it cannot construe tropes as instantiations (or instances – I am neutral with respect to the terminology here) of universals. This does not mean tropes are doing all the work for the theory. For the most part, the view can be recast in terms that make no reference to tropes. However, at least part of the theory requires tropes, namely the specification of non-circular persistence conditions. If one rejects trope theory, then at least most of the theory can still be preserved, but one would have to rethink how to specify the persistence conditions of bodies.[133]

Body vs. organism: parthood

An additional difference between the human animal and the body is their parthood conditions. The account relies on a time-indexed conception of parthood: parthood is strictly speaking a 3-place relation between an object, another object, and a time. We can specify the kind of relation that must obtain between the organism and its parts in disjunctive terms. For instance, we can draw on the historic-dependence account developed in the previous chapter and give the following conditions for being a part of an organism:

[133] I thank Simon Evnine and Amie Thomasson for pushing me to think about and clarify why the new bodily view is best put in terms of tropes.

> x is a part of the organism just in case it (i) participates in the life of the living organism or (ii) participated in its life immediately before it died and participates in the process of its decomposition in an appropriate way, or was not a part of that life immediately before the animal's death, but participates in the process of the decomposition of the animal in an appropriate way and (iii) is not part of an object that it was not a part of immediately before death.[134]

According to (i), a pacemaker is arguably not part of the organism, since it does not participate in the right kind of biochemical processes involved in a life. The temporal qualification "immediately before it died" in (ii) should prevent my account from including as parts of the dead organism parts that participates in its life long before it died, that have not been a part of the organism's metabolism immediately before death. Since I defended the somatic view, and specifically the historic-dependence account, the disjunctiveness of this condition should not be worrisome. It may be a vague issue whether a molecule that participates in an organism's decomposition is a part of it – and the account should mirror this vagueness. However, the account delivers some clear consequences in a range of cases. For example, if one mutilates a corpse and then feeds the mutilated arm to a crocodile, the molecules that are absorbed into the crocodile's life are no longer parts of the corpse (this follows from (iii)). If, however, one favors organic animalism, one can simply reject the second clause and claim that x is a part of an organism just in case x participates in its life process.

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[134] Clause (iii) follows from the intuitive idea of Jealousy, presented in the first chapter, applied to a wider range of objects (namely, non-living ones). The idea behind (iii) is that once a molecule (or a simple) is appropriately absorbed into a life, it cannot continue to be part of a distinct object that is not constituted by that life or is not a part of that life.

The conditions under which something is a part of the body are more permissive than the conditions under which something is a part of the human animal. One reason for this permissiveness is that the body has more kinds of parts: both the properties that compose the human animal and M-tropes and P-tropes are parts of it. Note, however, that while the human animal has P-tropes, other kinds of things may also have P-tropes and be parts of the body (along with or instead of the human animal). By transitivity, whatever is a part of the human animal is a part of the body. I will not give informative necessary and sufficient conditions for being part of the body. Objects that have M-tropes and P-tropes are bodies, and whatever is a part of such objects is a part of the body. However, we can say a bit more about what it takes to be part of the body. According to the new bodily view something can also be a part of the body if it is a vehicle of possible interaction with the environment. An artificial limb can be a part of the body according to this criterion. I will give a more detailed argument for the possibility of inorganic parts in my response to the thinking parts problem. More generally, that section will show one way of specifying what can count as a part of the body. Before discussing the puzzles, however, I will examine how we should classify the new bodily view, especially in relation to what might initially seem a very similar group of views.

The new bodily view vs. hylomorphism

According to the new bodily view we are identical to bodies: composite objects that have both M-clusters and P-clusters as parts. In addition, the relation between the human animal and the body is a non-mutual parthood relation. Since the body and the

human animal are not identical, one might think that the new bodily view is a type of hylomorphic account of the body. Whether this is true depends on how we understand hylomorphism.

According to one understanding of hylomorphism, which is arguably the weakest one, many constitution views are hylomorphic. For example, according to Evnine's (forthcoming) version of hylomorphism a sufficient condition for a view to count as hylomorphic is the following: Some things stand in the relation of *being the matter of* and this relation is irreflexive and asymmetric. On this conception, a view on which things have matter to which they are not identical is hylomorphic. So Baker's kind of constitution view is hylomorphic, as well as mine, at least if the human organism is taken to make up the body. I am not committed to construing the relation between the body and the organism as the is-the-matter-of relation. If is it sufficient for something to fall under the is-the-matter-of relation when it is the material part of another object (and contingently the only material part of it), then the human animal is the matter of the body. However, if the animal cannot be properly conceived as the matter of the body given that the body has additional property parts, then the human animal is not the matter of the body.[135] The matter to which the body is not identical is the human animal. The parthood relation I envision may be called constitution on this view, but the issue may be linguistic. If Evnine's condition is indeed sufficient for a view to deserve the name hylomorphism, my view is hylomorphic.

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[135] I should note that elsewhere Evnine thinks that treating the constitution relation as asymmetric and irreflexive makes a view hylomorphic (see Evnine forthcoming, chapter 2), and that this is the reason for construing Baker's view and Thomson's view as hylomorphic. If that is the case, my view may also meet this condition: the parthood relation between the human animal and the body is asymmetric and irreflexive. The reason that my view only possibly counts as hylomorphic is that the claim that the parthood relation between the human animal and the body is asymmetric and irreflexive does not by itself imply that constitution is asymmetric and irreflexive, only that some instances of it are.

On a stronger understanding of constitution (e.g. Koslicki 2008) the object has both matter and form as parts. So for a view to count as hylomorphic it must admit that objects have both material and formal parts. Since the new bodily view says nothing about forms, it is unclear why it is advantageous to understand it as hylomorphic.[136]

According to yet another meaning of hylomorphism, specifically about persons, we are body-soul compounds. For example, according to Toner's account of what we are, which he called hylemorphic animalism,[137] we are animals with rational souls (2011, 80). For this reason, our psychological capacities are essential to us. According to Toner a soul is not a Cartesian thinking substance and having a soul is not identical to having a mind, but it is responsible for having a mind (2011, 80). This, he argues, is sufficient to explain why our persistence has "*something* to do with out minds" (2011, 80). However, unlike Toner's hylemorphic animalism, the new bodily view does not mention souls at all. In addition, Toner argues that animals of different biological species can be human if they are rational, because a rational animal is human (2011, 79). But the new bodily view is incompatible with this claim: on the new bodily view I may necessarily originate from human parents, and thus have a human animal as a part, but survive the loss of the human animal by, e.g., becoming wholly inorganic. Furthermore, it seems that I would also not count as human in Toner's sense, since I would not be an animal in that case. Toner's view seems to not even be superficially close to my view – it merely shares a name with a view that may be similar to mine.

It seems, therefore, that either the new bodily view counts as hylomorphic if hylomorphism is understood in a very weak sense or it does not count as hylomorphic, if

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[136] According to Koslicki objects are structured wholes. But she leaves it open what structure is, i.e. whether it is an object or a property (Koslicki 2008, 254).
[137] Toner prefers the spelling "hylemorphism" to "hylomorphism".

hylomorphism requires a commitment to form or structure (which may or may not be properties) or to souls. Furthermore, if the view counts as hylomorphic, then the issue seems to be linguistic.

Now that we have a full characterization of the new bodily view and how it fits into the literature, we can also address the worry regarding hybrid views of personal identity (views that require both physical and psychological continuity for our survival over time). After I show how the new bodily view avoids the problems with standard hybrid views, I will go over a few puzzles in the personal identity literature and see if my view is compatible with other solutions to the puzzles, or if it can perhaps solve them in a new way.

Addressing the worry about hybrid views

Kind is skeptical about hybrid views of personal identity that require both psychological and biological continuity for personal identity over time (2015, 109). The reason is that a hybrid view would have to be either disjunctive or conjunctive, and both conjunctive and disjunctive hybrid theories cannot properly accommodate our intuitions about our survival. A conjunctive view can respect some, but not enough of our intuitions. For example, if the physical continuity required by conjunctive views is brain continuity, then in cases like brain transplants, I go both where my brain goes and where my psychology goes. However, such a view cannot accommodate the intuition that we survive teleportation or cases in which our psychological states are uploaded to, e.g., a robot or another person (109). In addition, such views also import some of the problems

of psychological views, for on such views we were never fetuses, since fetuses do not meet the required psychological conditions.

Disjunctive hybrid theories also face serious problems. For example, suppose that Baron's psychology is transferred to a different body, Newbod, while Baron's original body, Oldbod, remains intact (possibly with someone else's psychology). According to a disjunctive hybrid theory, Baron is identical to Oldbod, since there is biological continuity between his old body, before the transfer of his psychological states, and Oldbod. However, Baron is also identical to Newbod, because he is psychologically continuous with Newbod. However, he cannot be identical to two distinct things, so this result is unacceptable (Kind 110-11).

The new bodily view might be considered a hybrid view. Since it is a conjunctive view, it avoids the latter problem faced by the disjunctive view. However, since I argued that one of the virtues of the view is that it can accommodate some of our basic intuitions about ourselves, Kind's worry regarding hybrid conjunctive views may be a strike against it. There were two main worries regarding conjunctive hybrid views. First, it entails that we were never fetuses. Second, it cannot accommodate intuitions regarding teleportation or uploading of mental states.

While it is true that the view I develop entails that we were never fetuses, this consequence is not as counterintuitive as one may think. For on my view, we do have a unique relation to the fetus: while I was never a fetus, a part of me, namely the material part, necessarily originated as that particular fetus. Note that on animalist views according to which I was a fetus, I can never have inorganic parts, and if I have my

physical parts replaced, I can survive. The new bodily view can respect the latter intuition, while at least keeping an important sense in which I am related to the fetus.

Second, since according to the new bodily view I am not identical to the human animal, and since the biological continuity of the human animal is neither necessary nor sufficient for my existence, the view is compatible with the intuition that I survive teleportation and that I survive upload. However, while the view is compatible with these intuitions, it does not entail that I would survive any kind of teleportation or any kind of upload. For example, suppose my mental states were uploaded to a computer. On my view, I would not survive, since both psychological and physical properties are required for survival. The reason is that even if my mental states survived, the necessary physical properties would no longer be present. Physical continuity does not require the continuity of the human animal, but it does place some restriction on the conditions of my identity through time. In addition, the view at least lets us respect the intuition that part of me might survive, although I do not.

The puzzles

There are two puzzles that my view solves better than the constitution view. I will first briefly discuss a puzzle that is particular to the constitution view, which animalism does not face. I will show that the new bodily view avoids this puzzle. I will then discuss a second puzzle, which both constitution views and animalists face. I will present my solution to the problem and compare it to a solution in the vicinity.

The thinking animal problem

The problem: Psychological views of personal identity come in varieties – e.g. memory (Parfit), the first-person perspective (Baker), etc. On such views, we are identical to beings that have psychological characteristics. For this reason, on these views we go wherever our "psychology" goes – e.g. in the case of a cerebrum transplant, I would go with my cerebrum. Since Baker's view also stresses that we are identical to psychological beings, we can understand her view as falling under the psychological continuity camp. Suppose the constitution view is true, or that any psychological continuity view is true.[138] A person (a thinking thing) is sitting in your chair and reading these lines right now. However, as you sit there reading these lines, there is also a human animal sitting in your chair reading these lines. On the constitution view (and more generally, on other psychological continuity views) the human animal, albeit closely related to the person, is not identical to it. So it seems that there is a materially coincident pair of objects: a person and a human animal. Presumably, the animal can think – after all, it has a brain (this is an assumption that is accepted by Baker and most other parties in the debate; of course, I do not accept this assumption). The person, of course, can also think, in virtue of having that same brain. So it seems that there are two thinkers located at exactly the same place, having exactly the same thoughts. Moreover, you cannot know which one you are.

There are various solutions to this problem. For instance, a constitution theorist like Baker argues that while human animals think derivatively, persons think

[138] To see that the problem I will discuss is a problem for any psychological continuity view see: Olson (2002); Noonan (2010), 2010; Shoemaker (2004).

nonderivatively. The reason is that the human animal constitutes the person, and one may inherit properties from the other. These inherited properties are had derivatively, in virtue of constituting or being constituted by the other object, which has them nonderivatively. Since the human animal only thinks in virtue of constituting a person, there is no multiplication of thought or of thinkers in this scenario: there is one thought had derivatively by the human animal and non-derivatively by the person (2000, 197-204). For this reason, Baker argues, we should not double count the number of people located where the human animal is. There is only one person there, constituted by the human animal. There is similarly no multiplication of thoughts that should make us think there are two materially coincident thinking beings: when the person thinks "I am an animal", the human animal derivatively thinks the same thought, so there is no multiplication of thoughts – one true (uttered by the human animal) and one false (uttered by the person): in thinking any (self-referring) thought, "*there is only one statement* (a true one) made nonderivatively by me and derivatively by [the human animal]" (2000, 202 my emphasis). The reason that the statement is true is that when the human animal that constitutes me says "I am an animal", I refer to myself "nonderivatively and say of myself that I am an animal. What I say is true since…on the Constitution View, I am an animal derivatively. In this utterance, 'I' refers to [the human animal] derivatively" (2000, 202).[139] This solution is supposed to both explain why there is only one thinker located where I am and why there is no multiplication of thought where I am. The human animal that can only think in virtue of constituting me, a person, constitutes the thinker. I am essentially a thinker, and I am therefor the person. One could argue, however, that

[139] For a precise formulation of constitution and of derivative and non-derivative properties see Baker (2007, 167-168).

even if the solution explains why there is no multiplication of thoughts, it does not explain why there is no multiplication of thinkers having the thoughts in different ways. If there is no multiplication of thinkers, then there is only one candidate for being me. However, if one statement is made in two ways by the human animal and by the person, it is unclear how I am supposed to know which one I am.

One could also argue that the human animal that constitutes the person does not think at all. This is Shoemaker's strategy. He argues that human animals do not think because they have the wrong persistence conditions to think. Shoemaker's general strategy is to distinguish between thin and thick properties. The animal and the person share the same "thin" physical properties, including their micro-structural properties and other properties that are realized in these (2004, 528). But they do not share the thick properties. Thick properties are those that "can only belong to things having certain persistence conditions" (2004, 528). Mental properties, according to him, are thick, and so are the properties realizing them. Accordingly, they can belong only to things having psychological persistence conditions (2004, 528).[140]

Animalists do not face this problem. On this view, the mental properties are simply had by the animal. There is no additional thinker – the person – with psychological persistence conditions materially coincident with the human animal. Since it is the human animal that has the "thick" mental properties that Shoemaker ascribes to the person, or the non-derivative mental properties that Baker ascribes to the person, there is no multiplication of thinkers.[141]

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[140] For more on this solution see Shoemaker (2004; 2008; 1999). For a criticism of this solution see Árnadóttir (2010)

[141] For more on how constitutionalists do and animalists do not face this problem see Olson (2007, 29-30; 60-65).

The new bodily view also avoids this problem. It does so in a better way than both Baker and Shoemaker. It avoids the assumption that two beings, the human animal and the person, have a single thought in two different ways. It also avoids the claim that the human animal does not think at all. According to the new bodily view the human animal is a proper part of the body. Since the body and the human animal do not have all the same parts, the problem collapses into the thinking parts problem. So on the new bodily view, the thinking animal problem is a special case of another problem, namely the thinking parts problem. In what follows I will present the thinking parts problem and show how the new bodily view can solve it. If it solves the thinking parts problem, it also solves the thinking animal problem. I will then compare this solution to a solution in the vicinity, recently proposed by Madden.

The thinking parts problem

The human animal (or the body) – call it Norma – has parts responsible for its thinking – its thinking parts. Norma's thinking parts are arguably smaller than the human animal, and are sufficient for the production of thought and cognition. Since the thinking parts are smaller than the human animal, there are many overlapping objects that contain them: the upper torso, the head, the human animal minus the left toe, the human animal minus the left leg etc. These overlappers appear to have the necessary basis for having a first-person perspective and first-person thoughts. It is therefore hard to avoid concluding that they have first-person thoughts. Since the basis for the first-person thoughts is the same for all overlappers, it seems that so are the thoughts. So Norma overlaps with many

other beings that share her first-person thoughts. Furthermore, for all she knows, she could be one of those overlappers. Call one of the overlappers, e.g. a left-leg complement (the thing that has all of Norma except for the left leg), Norm. Unbeknownst to her, when the being who thinks she is Norma refers to herself, she may actually be referring to Norm. How can she know that she is referring to Norma rather than to Norm?

I should note that this, presumably, is a problem for everyone. Both constitution theorists and animalists face this problem. An animalist has to explain why we are identical to the human animal rather than to a part of the human animal. The constitutionalist must also explain why it seems that the candidate for constituting a thinking person is the entire human animal rather than one of these overlappers. Therefore, the fact that the new bodily view faces this problem is not an argument for its rivals. There are a few suggested solutions to this problem. While all of them are compatible with the new bodily view, I will offer a solution that can also provide some further justification for it.

Solving the problem:

This section will achieve two things. First, it will provide a solution to the thinking parts problem. Second, the solution will be a reason to favor the new bodily view over views like animalism and constitutionalism, since it provides a more principled way to solve the problem than these other views. To show why, I will compare my solution to a solution in the vicinity, recently proposed by Madden.

If the new bodily view is supposed to solve the thinking parts problem, it should do at least one of the following things: first, show what ensures that Norma refers to Norma rather than one of the things that seem to be her parts; second, and more ambitiously, explain why the overlappers are not thinkers. I will attempt to show that both claims are well motivated. To so do, I will show why Norma's parts are not good candidates for being mentally endowed subjects. Apart from providing a solution to the thinking parts problem, arguing that Norma is identical to her body rather than any of its parts will also show that the body is an object that *usually* extends as far as the skin, but can also extend beyond it, to incorporate objects such as artificial limbs. In addition, the body can also incorporate artificial organs. So the material parts of the body are not necessarily only those of the human animal.

According to the solution I offer a physical thing is a mentally endowed subject iff it realizes a set of representational functions that generally help subjects navigate the world, get inputs and outputs from the environment and sense the world and itself.[142] We can motivate this line of thought by the following consideration: such a set of representational functions also makes it the case that x is mentally endowed, i.e. a subject, since mentality at least minimally involves some awareness (not necessarily conscious) of one's position in space, the position of parts of one's body, etc.[143] If we can

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[142] There are many ways to understand what representations are. By using the term "representational" I am not committing myself to any particular view of representation. If the reader has a specific conception of representation that is not captured by my characterization of what makes x mentally endowed, then she can call my characterization "shmepresentation". I thank Mark Rowlands for encouraging me to think more deeply about this point. See Rowlands (2015) for an argument that there may or may not be a fact of the matter about whether a given item qualifies as a representation, and that either way, establishing whether cognition requires representation has neither practical nor theoretical utility.

[143] The account I offer is at least true for embodied mentality. If one thinks that there is such a thing as disembodied mentality, then this characterization clearly does not apply (note that the biconditional involves a physical thing, and not just any thing – material or immaterial). In addition, the possibility of disembodied mentality does not threaten the suggested solution for the thinking parts problem, for the problem arises given

show that properly speaking we can only individuate one set of representational functions where I am, then we can show that there is only one mentally endowed subject located where I am. This approach also gives us reason to think that if something is properly integrated into the representational functions, it is a part of the mentally endowed subject. For if something is represented by a cognitive system as a part in the appropriate way, then there is no reason to think it is not a part of it (since it realizes the representation of a part of the system in the appropriate way).

These representational functions can be cashed out in various terms. One way to understand these functions is in naturalistic teleological terms (according to Millikan (1983, 1993) a proper function is explained in terms of what it was developed for through history of selection). A different way to understand these functions is not committed to a teleological account (though it is not incompatible with it): these functions involve, in some sense, the representation of the system and/or its parts. Whether the representational functions are understood in naturalistic teleological terms or not is of little importance to the account I develop, though it seems that understanding representation – and in particular mental representation – in such terms is preferred by Madden (forthcoming). What matters for my account is that there is some representation of inputs from the world, as well as of the representational system itself (and/or its parts).[144]

The fact that something participates in realizing the cognitive system's representational functions does not automatically make it a part of the body. Other

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a number of *material* candidates for being me (unless, of course, one thinks we may have souls as parts – but I will ignore this complication).

[144] Each of the following views seems sufficient for the proposed solution to work: (i) the entire system is represented as such; (ii) parts of the system are represented as such. Of course (i) and (ii) are compatible, but a solution could be developed by relying on either one. Since studies suggest that at least some of the parts of the system are represented as such, I will rely on (ii) and leave (i) open (as I discuss the issue further it will become clear why it is more plausible to rely on (ii).

restrictions should be in place. For example, the candidate parts should be represented by the system (or the relevant mechanisms of the subject) as proper parts of the system (i.e. of the body). This idea does not imply that something is a part of the subject if the subject takes it to be part of the body[145] – the mechanisms of integration are more restrictive and to a large extent not conscious. In principle, it is possible for several things to realize this set of representational functions. But very often it is – at least to a large extent – the body schema.[146] For the sake of simplicity, I will focus on this particular realizer of these representational functions. In what follows, I will briefly explain what the body schema is and then explain how it can help us tackle the thinking parts problem.

The body schema

The body schema is "a system of sensory-motor capacities that function without awareness or the necessity of perceptual monitoring…[it] involves certain motor capacities, abilities and habits that both enable and constrain movement and the maintenance of posture" (Gallagher 2005, 24). According to de Vignemont we should think of the body schema as a "cluster of sensorimotor representations that are action-oriented" (2010, 679). Specifically, the body schema

[145] See Kovacs (forthcoming) for a similar view.

[146] For example, sometimes the body schema is missing, and the body image can serve as a replacement (see Gallagher 2005). The body image "consists of a complex set of intentional states and dispositions – perceptions, beliefs and attitautes – in which the intentional object is one's own body" (Gallagher 2005, 25). By contrast, the body schema "is a system of sensory-motor functions that operate below the level of self-referential intentionality. It involves a set of tacit performances – preconscious, subpersonal processes that play a dynamic role in governing posture and movement" (Gallagher 2005, 26). The solution I will present is not committed to any particular realizer or mechanism of these representational functions. In addition, it is not committed to the claim that the body schema is the only realizer of these functions.

> represents the body both as the effector and as the goal of the action, including short-term and long-term bodily properties that are relevant for action programming, action prediction and sensory feedback. In addition, sometimes, but not always, the body schema obeys principles that are different from those that apply to non-action-oriented body representations…. Because these representations serve different purposes, they have different contents. (2010, 679)[147]

The body schema is sometimes referred to as the body scheme rather (e.g. by Haggard and Wolpert, 2005 "Disorders of Body Scheme"), but I will continue to refer to it as the body schema. According to Haggard and Wolpert (2005) the body schema has seven core characteristics.[148] I will here mention four characteristics relevant for the following discussion.

First, the body schema is spatially coded: it represents the position and configuration of the body as a "volumetric object in space" (2005, 1). Second, it is modular: although postures of the body *may* be stored as individual entries (each entry describing the entire configuration of the body and stimuli of the body surface), evidence suggests that different parts of the body are represented in different neural modules. The resulting modular network is then used to represent all posture. Third, the body schema is adaptable in order to allow for gradual changes in the spatial properties of the body. This feature is necessary since the relative and absolute sizes of our body parts change over life. In addition, they note that plastic changes may occur with tool use: "in tool use…visual receptive fields of bimodal neurons previously linked to hand position may

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[147] The body schema is therefore related to the dorsal stream, which is one of the two functionally specialed cortical streams of visual processing, namely the one that is action-related and unconscious (see Milner and Goodale 2008). Although there has been evidence to suggest that conscious vision can affect action, one can still argue that we should distinguish among unconscious vision for action, conscious vision for perception and unconscious vision for perception (See Brogaard 2011).

[148] According to Haggard and Wolpert (2005) the body schema is a neural representation of the body used for spatial sensorimotor processing. Like I mentioned previously, for the purpose of my argument nothing hinges on whether it is appropriate to call it a neural *representation*.

move towards the tip of the tool, or towards the visual representation of the tool on a video monitor" (2005, 2). These changes may occur as extensions to an existing body schema or as rapid switches between several coexisting schemas. The latter option – switching between schemas – does not entail that several schemas are active at the same time, but that the somatosensory cortex switches between "concurrently pre-existing maps depending on actual requirements" (Braun et. al. 2001, 2265). Fourth, there is a coherent spatial organization of the body schema across space and time, to ensure that body experience is continuous.

We can think of the body schema in terms of neural correlates or in terms of mental states. These are not incompatible ways of thinking about the body schema. However, unless we accept some identity view about mental states and their neural correlates more generally, we cannot assume that they are identical. In what follows, the discussion should be understood as involving the body schema as an unconscious mental state. The latter is what directs our actions, unconsciously. One reason I will not discuss the body schema in terms of neural correlates is that I do not wish to take a stance on the relation between mental states and neural correlates. In addition, the issue at hand focuses on individuating body schemas, not how body schemas (as states) are physically realized or how the physical state is individuated.[149]

Back to the solution

[149] Furthermore, the fact that a unit has parts does not mean that it is not modular. For example, even if for the sake of the argument we grant that Fodor's modular language hypothesis is true, he would not deny that there are various parts in the brain that belong to this modular unit (see Fodor 1983, 118). I would like to thank Berit Brogaard for helping me think about the distinction between the body schema as a mental state (which is a representational unit) vs. the body schema as neural correlates of bodily representation.

Recall that according to my view a physical thing is mentally endowed iff it realizes a set of representational functions that generally help subjects navigate the world, get inputs and outputs from the environment and sense the world and itself. Since realizing a set of appropriate representational functions is necessary and sufficient for being mentally endowed, one might raise the following two objections.[150] First, if realizing this set of functions is necessary for a physical thing to be mentally endowed, what should we say about cases in which parts of the organism, e.g. a leg, a hand, or the entire left side, is not represented as such? Are these objects not parts of the body? We can call this the necessity worry. Second, if realizing this set of functions is sufficient for a physical thing to be mentally endowed, why should we not say that there are multiple thinkers – thinking parts – each of which is a part of the body schema? We can call this the sufficiency worry. To adequately address these worries, I will explain the account in greater detail.

According to the solution I offer *the complete set of representational functions* that a mentally endowed physical thing realizes is *closed under inclusion*: it is the total set of functions, and the functions that they somehow "mention". For example, if to calculate how the hand should reach for an object the module also needs to have information about the posture of the body, then that information is "mentioned" by the module. This means that the set that involves the module that calculates hand motion must also involve the module used for the representation of the posture of the entire body. Consider the description of the body schema given above. According to de Vignemont the body schema is a cluster of sensorimotor representations that are action-oriented. This characterization can further motivate the claim that we should individuate body schemas

[150] I thank Mark Rowlands for raising these concerns for my kind of solution.

as a complete set of representational functions closed under inclusion. Take a certain action that I perform, e.g. grasping for an apple in front of me with my left hand. If my left-hand complement (my body minus the left hand) wanted to grasp the apple, and had been a mentally endowed physical object, the representation of the left hand and the peripersonal space (the space around the body within which one can grasp things) would have been different from my own, e.g. perhaps the left hand would count as peripersonal space rather than personal space).

If it is necessary for a physical thing to realize the complete set of representational functions closed under inclusion in order to be mentally endowed, then parts of the set – in this case parts of the body schema – do not count as mentally endowed. As I showed, this characterization of representational functions is well motivated. So far, I have addressed the sufficiency worry, namely the worry that if realizing a set of representational functions is sufficient for being mentally endowed, and if the body schema has parts, then its parts may also be used to individuate mentally endowed systems. I will now address the necessity worry. Recall that this is the worry about the representational function not representing something we would normally consider a part of our bodies, e.g. because of damage to the body schema's physical realizer. In that case, is that thing not a part of our bodies? For example, if the body schema fails to represent my left hand, is it not part of the body?

We can respond to the worry by appealing to the way the body schema usually functions. Although the schema normally functions in a certain way, e.g. such that the left hand is represented, sometimes the body schemas works deviantly.[151] My left hand is a

[151] See, for instance Gallagher's discussion of Ian Waterman, also referred to in the literature as IW, who lost normal motor control because he lost proprioception and the sense of touch from the neck down (Cole 1995);

part of the body because the body schema type represents it as part of the body. But what would we say about a body schema representing an additional non-existing limb, e.g. an additional (third) arm? Or what about the phantom limb phenomenon, in which one experiences a limb that was lost? Here, we can respond as follows: the body schema is not functioning properly because there is no material candidate that the body schema actually captures. If there is no existing material object that could possibly be part of one, then the schema cannot be said to properly represent anything (since nothing is in fact represented by it).[152]

One may worry that this way of speaking of function is too restrictive. I focused on the body schema, which is a particular way to be a representational function. But if according to the new bodily view we can have all of our parts replaced, what ensures that they still operate according to the body schema? First, the body schema is one way of being a representational function, and I focused on it for the sake of simplicity. My view, however, does not exclude the possibility that it is possible to have additional representational functions. Second, note that the view is not restricted to biological functions. While my view is compatible with all functions being biological, it also allows for heavy-duty teleological functions that are not biological. For instance, prosthetic limbs are good for a purpose, and are designed for that purpose. If they are properly integrated into the representational functions of the body, then they are parts of it.

An additional worry is that the solution only works for proper parts that differ significantly from Norma. What about a different candidate, Nor, who differs from Norma only in not having an electron located in the middle of Norma's arm? The

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also discussed at length in Gallagher 2005). IW achieves control over posture and movement by "a partial and imperfect functional substitution of body image for body schema" (Gallagher 2005, 44).

[152] Or perhaps more broadly: if there is no matter, or stuff that can be a candidate for being part of one.

mereological difference between Norma and Nor is only an electron. Since the electron is not represented by Norma, we cannot appeal to representational functions to explain why Norm is not a good candidate for being a thinker. However, while the representational function does not represent the electron, it represents the arm, and the electron is a part of the arm. While our representational capacities may determine which physical things compose us, the question about which small things (e.g. electrons) compose which large things (e.g. the arm) is independent from our representational capacities. On some level of grain everything has to be represented, but that does not mean that each individual particle has to be represented – it is enough if it overlaps something that is represented.

According to the preceding considerations there is a good case to be made for the conclusion that there is no body schema where Norma is located that would characterize a being like Norm, so it seems that Norm is not a mental subject at all. If that's true, then Norma's parts are not mentally endowed subjects like Norma. Note, however, that these considerations also have a consequence regarding Norma's parts in general. Arguably, if something is properly integrated into the body schema, which coordinates various input and outputs of the body, for which it represents the body parts, then the objects represented as parts of this system are good candidates for being parts of it (i.e. of the body). So according to this solution to the thinking parts problem Norma can also have inorganic artificial limbs and other inorganic body parts (e.g. artificial organs). Suppose that the inorganic leg is properly integrated into Norma's body schema. The assumption is not implausible. Some empirical studies suggest that the body schema sometimes representationally incorporates tools that are used by the agent (Maravita and Iriki, 2004; Berti and Frassinetti 2000). Specifically, tools can "become incorporated into a plastic

neural representation of our body" (Maravita and Iriki 2004, 85). If that occurs, the artificial leg is a part of Norma.

This approach is principled because it does not assume what the boundaries of the body are. It begins from an independently plausible principle about what the system properly represents as part of itself. If this principle is accepted, then there is a reason to think that the system encompasses the parts that it properly represents (and the parts of those parts). For this reason, there is only one representational system where Norma is located, the one representing her own bodily boundaries. If there were a mentally endowed thinking part there, e.g. Norm, it would have a different representational system from the one actually present. Since having a representational system is necessary for being a mentally endowed subject, and there is no representational system that would characterize a being like Norm, Norm is not a mentally endowed subject.

There is another principled solution to the problem in the vicinity, offered by Madden. The motivation for his solution can strengthen the solution I just presented. After discussing his solution, which, on the face of it, closely resembles mine, I will show why my solution is preferable. I will end the section by showing that if we accept my proposed solution, then we should also favor the new bodily view instead of animalism and instead of constitution views such as Baker's.

Madden's solution, which he calls the psychological functional account, is as follows: undetached parts of a human organism and the human organism do not stand in the same relation to the thinking parts they contain. We can show this by appealing to natural functions: "x is a conscious subject iff x has parts whose function it is to causally coordinate in a complex way the input of x and the outputs of x" (25). The thinking parts

do not have the proper function of causally coordinating the overlappers (the mereological difference of the human and, e.g., the left leg), while they do have the function of causally coordinating the human organism. A system is mentally endowed just in case it has parts "whose function it is to causally coordinate its inputs and outputs in a sophisticated way" (28). Therefore, since the thinking parts do not have the proper function of coordinating the inputs and outputs of the overlappers, the overlappers are not mentally endowed (28).

Suppose this solution works. Madden thinks that this is also an argument for what he calls the naïve thesis: we have a human form, i.e. we extend from head to toe and are bounded by sensitive skin. This thesis articulates how things naively strike us. According to the psychological functional account we are not identical to any of the overlappers, so the naïve thesis is true: we extend as far as our skin (Madden 2). He further argues that both animalism and constitutionalism entail the naïve thesis (Madden 2-3). If that's the case, then if the naïve thesis is false, there is a problem for animalism and constitutionalism (more precisely, Madden claims that if the naïve thesis is threatened, so are animalism and constitutionalism).

Is the naïve thesis true? Here, we should note that there are two ways to understand the naïve thesis. The first way is to read it as a *contrast claim about skin-boundedness*: we are things that end where our toes and nails etc. end, rather than things that are proper parts of those things. We aren't things embedded into human organisms. This is at least true in most typical cases: we are beings that end at their skin rather than any parts of such beings. This claim is arguably compatible with the solution I offered: I

am identical to something with the same boundaries as an organism rather than any of its parts.

The second way to read the naïve thesis is as an *absolute claim about skin-boundedness*: we have a form that is bounded by our skins, no more, no less. Accordingly, our skin is where we "stop" and the world "begins". But arguably whereas the first claim is plausible, the second claim can be contested. For example, suppose that Norma loses her left leg and gets an artificial leg. Is that leg now a part of her? If so, is this answer compatible with the naïve thesis? One could argue that it is a part of her to the extent that it is properly integrated into her representational functions. For instance, if it is properly integrated into her body schema, then the artificial leg is properly integrated. But according to the naïve thesis (as an absolute claim) we only extend as far as our skin. Presumably, one can also read or modify the solution offered by Madden as only entailing the contrast claim, rather than the absolute claim. But if that is the case, then animalism and constitutionalism are threatened. The tension between these views of personal identity and the adequate solution to the thinking parts problem can be put as follows:

> P1) Animalism (and Baker-style constitutionalism) entail that we only extend as far as our skins, so they entail the naïve thesis as an absolute claim.[153]
>
> P2) The solution to the thinking parts problem entails that the naïve thesis as an absolute claim is false (it only entails the naïve thesis as a contrast claim).

[153] Since a constitutionalist like Baker thinks that constitution is a one-one relation, then if inorganic objects cannot be part of the organism, they are also not parts of the person. For if they were parts of the person constitution would not be a one-one relation. So in a way, she also relies on what can be a proper part of an organism. It is a virtue of my theory that it is not committed to this strong claim, and in general it might be a reason to not construe constitution as a one-one relation.

P3) If the naïve thesis as an absolute claim is false, then animalism (and Baker-style constitutionalism) are false.[154]

C) Animalism (and Baker-style constitutionalism) are false.

Since animalism requires the naïve thesis as an absolute claim, a threat to that claim can threaten animalism. For according to animalists, we are organic human animals. Since inorganic objects cannot be proper parts of the biological life of the animal, they cannot be parts of us. So properly speaking, if Norma has an artificial leg, that leg, according to animalists cannot be a part of her. But according to the solution to the thinking parts problem, it can, in fact, be a part of her.

The naïve thesis as an absolute claim, as I suggested above, is far from obvious. Whether or not artificial limbs and other inorganic parts can be proper parts of the humanoids depends on how we construct the functional/representational story that solves the thinking parts problem. According to my solution, it is clear that the naïve thesis as an absolute claim is false. But does Madden's solution also imply the falsity of the claim? I will now argue that we can pose a dilemma for Madden's solution: His argument is either circular, or else – if we make it noncircular by favoring the approach I developed above and reading it along those lines – it implies that the naïve thesis as an absolute claim is false. To show this, I will examine a examples that are as modest as possible: I will not appeal to bionic attachments to an entire human animal (Norma before any limb or organ removal) that enhance the humanoid. Instead, I will appeal to inorganic objects that may

[154] Madden does not distinguish between the two versions of the naïve thesis. But he argues: "if an empirical commonplace poses a threat to the naïve thesis, then it poses a threat to both of these leading views in the personal identity debate" (Madden 3).

replace existing limbs or organs. I will show that to deny the claim that we can have inorganic replacements Madden must either assume that we have a human organic form, or, if he admits that we may have such inorganic replacements, then we should favor my solution, which is more principled.

According to Madden, a system is mentally endowed iff it has parts whose function "is to causally coordinate its inputs and outputs in a sophisticated way" (28). The coordinating parts (i.e. the thinking parts) have the proper function of coordinating the inputs and outputs of the entire organism rather than the inputs and outputs of any of the overlappers (28). Suppose Norma loses her left leg and gets a new artificial leg. Although the leg replacement did not biologically develop and presumably does not have the same kind of natural function that the organic leg had, it is still designed to fulfill a certain function and to coordinate the inputs and outputs of the mentally endowed system, Norma. On the account I previously developed its proper function – albeit from a different (nonbiological) source – is to participate in the coordination of the inputs and outputs of Norma. It is plausible that Norma's left leg complement doesn't play the natural function that the humanoid (the entire organism) does. But the fusion of Norma, who lost her left leg, plus the artificial leg, plays the natural function better than Norma minus the artificial leg. Note that these considerations entail that we are not necessarily skin-bound. It is unclear what Madden would say about this approach, for he focuses on evolutionarily developed natural functions.

Furthermore, what would Madden say about the replacement of internal organs by mechanical substitutes, e.g. artificial hearts? The claim that such inorganic substitutes are parts of the system cannot be based on the claim that they are inside the skin of the

organism, for that would be too unprincipled (consider an analogy: a child swallows a Lego piece – although the it is inside him, it is not part of him in virtue of its location). Madden would agree with this point, for he is not committed to a thesis on which anything bound by my skin is a part of me. On my account, however, artificial internal organs are – if not parts of the organism – at least parts of the body. The reason is that they are designed to keep the other parts of the system performing their function. Furthermore, although it may not be represented in the body schema it is arguably represented as a part of the interoceptive system.[155] One could argue that there is a difference between receiving information from a source and representing it as part of one's body. However, at least if the kind of storage and processing of information is the same as (or sufficiently similar to) the storage and processing of organic body parts – e.g. a normal heart – then one could make the case that the inorganic heart count as part of one's body.[156] Here, again, it is unclear what Madden would say, given his focus on proper functions and naturalistic accounts of representation.

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[155] The interoceptive system, which was first taken to be the sense of the visceral modalities by sir Charles Sherrington, is now taken to be more generally the sense of the physiological condition of the entire body (Craig 2002). The interoceptive system is "a homeostatic afferent pathway that conveys signals from small-diameter primary afferents that represent the physiological status of all tissues of the body" (Craig 2002, 655). Vaitl distinguishes several kinds of interoception: cardiovascular, respiratory, gastrointenstinal and afferent effects of the endocrine system (1996).

[156] Couto et. al. (2014) study a patient with an external heart (an LVAD: extracorporeal left-univentricular cardiac assist device) and assessed his neural/behavioral measures of cardiac interoception, "complemented by neuropsychological and social cognition measures" (1253). They found that the patient's performance on the interoception task (hearbeat detection) "seemed to be guided by signals from the artificial LVAD, which provides a somatosensory beat rather than by his endogenous heart" (1253). The case study suggests "there may be some degree of plasticity after peripheral sensory modification" (1259). They draw an analogy between the extended mind hypothesis (Clark and Chalmers 1998), according to which bodily actions and external tools can be seen as extensions of the human mind, and the claim that an external LVAD pump can be seen as an extension of interoceptive processes. More specifically, they appeal to the concept of brain-artifact interfaces (BAI), proposed by Malaforouis, which "allows the brain to delegate part of a cognitive process to a physical artifact and through this can initiate a structural rewiring of existing neural pathways and rearrangement of the functional architecture of the engaged brain system" (1259). They suggest that the external LVAD pump can be thought of "as a BAI for the patient's cardiac interoception" and that the results of the study "provide indirect support for neuroplasticity and functional changes in somatosensory cortices…the external LVAD could be considered an interoceptive-BAI for the maintenance of homeostasis in afferent cardiac modulation of cognitive processes" (1259).

It is clear that on my developed solution, we can justify the claim that, e.g., the fusion of Norma, who lost her left leg, plus the artificial leg, plays the natural function better than Norma minus the artificial leg. My original suggestion explains what it means to appropriately coordinate Norma's inputs and outputs (e.g. by looking at what is appropriately incorporated into the body schema). According to Madden, something is a part of a mentally endowed system iff the (proper) function of its parts is to coordinate its input and outputs in a sophisticated way. One way to put more meat on this statement is by appealing to the notion of a body schema I previously introduced. If an object is represented in the body schema as part of the body, then it is a part of that mentally endowed system. But if that is the case, then the naïve thesis as an absolute claim is false, since we may have a form that includes the human organism and an additional, inorganic object.[157]

Recall that if the naïve thesis as an absolute claim is threatened, so are animalism and constitutionalism. Since Madden thinks his defense of the naïve thesis also justifies a necessary claim for these two views, he might disagree with the preceding way to account for the examples. If Madden disagreed with this approach, he could push for the following response. The latter line of thought ignores an important feature. For according to him, we can "single out the genuinely represented feature from among the various causal correlates of the system, *as the feature that it is the system's function to represent*" (28, my emphasis). This claim can block the considerations in favor of Norma having an inorganic, artificial leg mentioned above. It is not the system's function to represent Norma's artificial leg as her own leg. Therefore, the artificial leg is merely a causal

[157] Whether or not this extends to tools we get really good at (e.g. a professional player's tennis racket) is an empirical question. It depends on whether that tool is represented as a part of the body.

correlate that helps Norma navigate through the world. If it is represented in the schema, it is a *misrepresentation* rather than a fortunate accurate representation. But one can respond to this worry in the following way. It is not clear that the system's function is not to represent such features. For example, Iriki and Taoka suggest that brain modifications can be induced automatically in succeeding generations through the normal developmental processes as a result of cognitive demand, such as the incorporation of motor tools into the body schema (2012, 13).[158]

Suppose that Madden insists that the artificial leg is not something that the body schema is supposed to represent as a body part; if it does, it is a case of misrepresentation.[159] To defend this claim, he cannot assume that the object is not a leg. Unlike a stick used to reach some distant object, the artificial leg is designed integrate into the body's schema as a leg. Given that the artificial leg is a leg, the assumption that Norma's artificial leg is a causal correlate of the system, rather than a part of her, presupposes that Norma can only have organic parts. But if this is presupposed, then the defense of the naïve thesis as an absolute claim starts to look circular. It amounts to the claim that we have a human form because we are human organisms that only extend as far as their skin, no more, no less.

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[158] More specifically: "once a novel cognitive demand, such as incorporation of motor tools into the body schema, has become embedded in the environment, modifications of brain structure would be induced automatically through the normal developmental processes in succeeding generations. The occurrence of such a plastic response during the lifespan as a result of behavioral modifications that lie within the existing adaptive capacity of individuals, and its subsequent consolidation (under selection acting on changing gene frequencies) as a default state that is stable over generations is termed the 'Baldwin effect' and comprises one potential component of the evolutionary process" (2012, 13).

[159] Elgin also claims that artificial limbs are not body parts: "a prosthesis is an artifact that substitutes for an appendage or organ to recover some lost human function. Even though an artificial leg takes the place of a natural one, no one is inclined to consider it part of the body it supports" (1997, 101). Apart from the appeal to what one would be inclined to consider a body part, however, she does not offer an argument for the claim. One could also argue that at least in some cases one would be inclined to consider prostheses as body parts, e.g. in cases where the prosthesis is especially advanced (the BioTac by Syntouch would constitute a good example: it contains the sensory capabilities of the human fingertip. For more information see http://www.syntouchllc.com/Products/BioTac/.

So it seems that an appeal to the inputs and outputs that the system is supposed to causally coordinate can provide an adequate solution to the thinking parts problem. But if we want this solution to also be non-circular, we should favor my approach over Madden's. My solution, however, can only serve as a defense of the naïve thesis as a contrast claim, while undermining the naïve thesis as an absolute claim. As a result, both animalism and constitutionalism – to the extent that they require the naïve thesis as an absolute claim – are undermined. This solution is also a consideration in favor of the new bodily view: the solution to the thinking parts problem implies that a mentally endowed system can include inorganic parts.

Final thoughts on the solution:

Both my solution and Madden's solution appeal to representational functions in order to solve the thinking parts problem. But while he understands these representational functions in naturalistic terms, and as also vindicating our intuition that we have a human form, my solution is more lenient about how to understand these representational functions and as a result also sits well with a view on which we may sometimes have a form that deviates from the skin-bound human animal. But given that we both appeal to representational functions, one may still wonder if my solution is too close to Madden's. In addition, does it face the same problems as his solution? After briefly introducing two concerns regarding Madden's solution, I will show that my solution avoids these concerns.

Madden's account faces two issues: first, his solution seems to exclude the possibility of having inorganic parts. This may or may not be an intuitive consequence of his account. Second, and more importantly, his solution seems circular – it shows that we have human form by appealing to a story about parts of the organism that are supposed to control other parts. Madden explains how parts of the organism have the proper function of controlling other parts of it in terms of naturalistic accounts of proper functions. This way of developing the solution, however, seems to presuppose that we are human animals that have certain parts that are supposed to control other parts. The circularity charge can be understood in two ways: (i) Madden wants to argue for animalism and ends up presupposing it, or (ii) Madden wants to solve the thinking parts problem and his solution presupposes animalism. But that makes the solution uninteresting because one can just say "we are animals". While (i) is not a serious worry, since there may be other good arguments for animalism, (ii) is a serious charge. If (ii) is true, then the solution is uninteresting. A good solution should not presuppose animalism, but have it as a consequence. If the previous considerations are right, then (ii) is a serious worry for Madden's preferred solution.

My solution differs from his on both counts. First, an appeal to a representational function like the body schema allows that it is possible for us to have inorganic parts. Second, my solution fares better than his with respect to the circularity worry. Madden seems to accept a biological interpretation of representational functions; but if this much is presupposed, he could have already presupposed that one is an animal. Could one say of my solution that since I have a specific understanding of what the body is, I also presuppose that we are bodies? One way to think about the difference between our views

is as follows. According to Madden, we have certain parts because they have certain proper functions. However, according to my view I have a certain part because I am that which has certain functions and the part is able to play this function. I do not start with the parts and ask what functions they have. Instead, I start with the representational functions, assign them entities and then see what parts they have. My strategy is compatible with only having organic parts that play those functions; even if for some reason only organic parts could play those functions (although there is empirical evidence to the contrary), and my view would be *extensionally* the same as Madden's, it would not be the same view as Madden's: I am the thing that has certain functions, and if it turned out that only organic things can play those functions that would be an extra discovery.

Chapter 4: Self-Awareness, Bodily Awareness and the Bodily Awareness Puzzle

I have thus far argued for the following claims. The somatic view, and specifically the historic-dependence account of organism persistence, is true. On this conception of organism persistence, organisms can 'survive' their deaths as corpses. I also argued that 'body' is a legitimate term that we should reintroduce into the personal identity literature. It denotes a well-defined kind of object, which is distinct from the human animal. Something is a body iff it has the conjunction of certain mental and physical properties. A body persists so long as the respective tropes persist.[160] Furthermore, the human animal is a proper part of the body whereas the body, and not the human animal, is identical to us. The view I proposed lets us keep more of our intuitions regarding our persistence conditions than animalism. Furthermore, it also helps us solve puzzles that competing views cannot solve. Therefore, one way to think of the new bodily view is as a constitution view that does not have the thinking animal problem.

In this chapter I will examine the relation between self-awareness and bodily awareness (or awareness of one's body – I will use the expressions interchangeably). Is bodily awareness a type of self-awareness, or are the two distinct forms of awareness? If they are distinct, is there some other interesting relation between them? I will argue that while bodily awareness is not a form of self-awareness, some tokens of self-awareness are identical to tokens of bodily-awareness. For this reason, it seems very natural – albeit

[160] In what follows (following Rowlands 1989) I use the term property instance to refer to a trope, e.g. this particular redness, and not to the thing that instantiates it or that has it (it does not refer to, e.g. the shirt that has the particular instance of redness).

mistaken – to also think that bodily awareness is a form of self-awareness. After arguing for the claim that bodily awareness and self-awareness can be token identical, I will end the chapter by constructing a puzzle for constitutionalists like Baker, which is based on this claim.

The chapter will divide into two main sections. The first section will be devoted to examining the relation between self-awareness and bodily awareness. After exploring a few ways to understand the notion of bodily awareness, I will present three kinds of possible relations between bodily- and self-awareness. I will reject the first relation, present reasons for accepting the second, and then present a third, new, way to interpret the relation between them. In the second section I will build on the results of my argument regarding bodily awareness and self-awareness to construct a new puzzle for constitutionalism, which I call the bodily awareness puzzle. Note that in what follows I use the term "body" as most people do in the literature on bodily awareness, and take it to refer – at least in most cases – to the human animal. However, unlike others in the literature I do not assume that the term cannot also refer to physical parts we have like, e.g., inorganic limbs. So although, in what follows, the body can be taken to refer to the human animal, we can also recast these views in more general terms as whatever material parts we have. [161]

1. Bodily awareness: What is it and how is it related to self-awareness?

Bodily awareness can be thought of as an umbrella term that captures a variety of phenomena. The sense of bodily awareness that will be the focus of this chapter is not the

[161] So bodily awareness, on the new bodily view, is more broadly awareness of our material parts.

kind of awareness that I have of my body as an object, when, e.g., I look in the mirror or stare at my feet when I am waiting in line in the post office. The kind of bodily awareness that is the focus of the chapter can be broadly understood as awareness of the body as a subject, or "from the inside". For example:

> (i) You are bodily aware when you are experiencing some pain (e.g. in your left leg, or a dim pain that affects your entire body).
>
> (ii) You are bodily aware (of, e.g. the position of your limbs) through proprioception and interoception.
>
> (iii) You are bodily aware when you act in the environment, or want/plan to act. This form of bodily awareness involves anticipation. For instance, you are aware of your body before you circle a table, or when you start learning new dance moves. You have some awareness of what your body can and cannot do.
>
> (iv) You are bodily aware when your left hand touches your right hand.
>
> (v) You are bodily aware when you are physically exhausted, or thirsty, or hungry.

These examples capture a few distinct phenomena: sensations (e.g. of pain), feelings (e.g. of exhaustion, thirst, hunger), limb position and movement. Generally, it won't matter for the purpose of this chapter which of these phenomena I have in mind; the characterization of bodily awareness "from the inside" suffices, at least for the point necessary for the construction of the puzzle at the end of the chapter. However, for the sake of simplicity I

will focus especially on the kind of bodily awareness present through interoception and proprioception.

It is useful to think about two elements involved in bodily awareness, which are involved in awareness of any kind: the act of awareness and the object of awareness. In what follows, when I refer to the object of awareness, I will qualify it with "as". For example, when are aware of our bodies, we are aware of them as physical objects: voluminous objects located in space.[162] While this claim may seem trivial, the reason to introduce this expression is that according to some (e.g. Cassam), when we are aware of ourselves, we are aware of ourselves as physical objects in the latter sense, rather than as only (possibly non-material) carriers of mental states, while according to others (e.g. Shoemaker), we are not aware of our physical aspects in being introspectively self-aware.[163] I will examine these claims more carefully in the next sections.

In addition to the object of awareness, we can distinguish a second element: the act of awareness. The act of awareness is the way in which one accesses a certain object of awareness. For example, being bodily aware through proprioception is different from being bodily aware through pain. In what follows, when I speak of the act of awareness, I will qualify it with "qua". For example, one can be aware qua subject or qua object. The simplest way to capture awareness qua object is to think of features of perceptual awareness. I will follow Bermudez's (1998) and Ávila's (2016) summary and naming of the features of perceptual awareness:

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[162] I do not wish to imply that we are aware of our bodies in some conceptual way as a physical object. I only wish to imply that, when we experience our bodies, we experience a physical object.

[163] All of the above cases are supposed toinvolve awareness of something as a physical object. We can make sense of it by contrasing these cases with, e.g., awareness of something as an agent of thought (if we think it does not mean we are aware of it as a physical object).

Perceptual awareness (or awareness qua object):

1. The identification constraint: we can single out an object among a variety of other objects, and we can keep or lose track of a singled out object over time (Ávila 2016, 2).

2. The multiple-objects constraint: "ordinary modes of perception admit of our perceiving, successively or simultaneously, a multiplicity of different objects" (Shoemaker 1986)

3. Perspectival character: we perceive objects from a particular point of view and they appear to stand in spatial relations to ourselves. (see Ávila 2016 for a more details of these features).

Similarly, we can also be aware of something qua subject. According to Cassam, this kind of awareness should satisfy the following sufficient conditions:

Tentative conditions for awareness qua-subject:

(a) Awareness of [oneself] as one's point of view on the world;

(b) Awareness of [oneself] as the bearer of one's sensation's and other mental states;

(c) A form of awareness which does not allow for misidentification, it is immune to error through misidentification (henceforth IEM). (Cassam 2011, 148)

In addition, following Longuenesse we can think of the distinction between these two ways of accessing an object of awareness as follows: awareness qua object involves

temporal tracking, whereas awareness qua subject involves no temporal tracking (Longuenesse 2006, 297).

The idea behind the claim that awareness of oneself qua subject does not involve temporal tracking is that if I claim "this was red", my claim might be grounded in various observed similarities between how I see this thing now and the thing I remember seeing to be red in the past, or on some series of phenomena that I observed while perceptually tracking the object over time. But if I say "I was angry" on the basis of memory in the ordinary way, my claim is not based on an introspectively observed resemblance between a past and a present self, or on an introspective tracking of a self over time (Shoemaker 1986, 111). However, it is debatable whether temporal tracking is the important dividing feature between these two modes of access. Suppose that we focus on the feature specified in (c) above, namely IEM. It is not clear that past-tense judgments about oneself, like "I was angry" are IEM in the relevant way. Shoemaker (1986), for instance, expresses this claim; he argues that such judgments are only contingently IEM.

Coliva agrees and tries to explain why they are only contingently IEM. In other words, she tries to explain why although the "relevant judgments aren't arrived at by holding in place any identification component of the form 'I am identical to the person whose past is responsible for the memory impressions I am now having', they are only contingently immune to error through misidentification" (2012, 29). An explanation of this claim, according to Coliva, is that the identification component can be a part of one's background presuppositions for one's judgment, even if it not the ground of these judgments (Coliva 2012, 31). Coliva illustrates the distinction between an identification component's figuring as the ground of one's judgment and its figuring as part of the

background presuppositions by examining the following case: take the recognition-based judgment 'John is wearing a white shirt'. To justify this judgment I would say that a certain person is wearing a white shirt and that that person is John. However, my judgment that John is wearing a white shirt is also based on the background presupposition that, e.g., John is immediately visually recognizable. This background supposition normally does not figure in the justification of my judgment, but if it turns out that John has an identical twin brother in town, and that he wears the same clothes, then I should withdraw from my initial judgment (Coliva 2012, 30-31). Similarly, memory-based self-ascriptions are not grounded in an identification component, but an identification component (e.g. "I am identical to the person whose past is responsible for the memory impressions I am having") is part of their background presupposition (Coliva 31). There are two ways to construe this case. First, we can say that there are two different kinds of error and IEM, because while the judgment is IEM relative to the ground of one's judgment, it is open to misidentification relative to the background presupposition. Or alternatively, we can say that there is only "one kind of error through misidentification – viz. relative to one's own grounds – and hold that in abnormal metaphysical and epistemic conditions the relevant identification component could be moved from the background to the subject's own grounds for his judgment, and thus make the latter liable to error through misidentification after all" (Coliva 31). For the present it is only important that we understand the basic distinction between awareness qua subject and awareness qua object. And we can simply add, given the above reservations about a more general IEM claim regarding judgments about memory, that it

is likely that only present-tense self-ascriptions are based on awareness of something qua subject.

What is the relation between bodily awareness and self-awareness? According to some, bodily awareness qualifies as self-awareness (awareness qua subject).[164] So whatever criteria of self-awareness one might have (for instance, they may be the criteria specified above in *Tentative conditions for awareness qua-subject)*, bodily awareness can be shown to meet these criteria. Why suppose this is the case? Some argue that whenever I am introspectively self-aware, some implicit bodily awareness is involved. For example, according to Cassam "it is…plausible that introspective awareness of one's thinking, experiencing self *as a physical object* among physical objects, is a *necessary condition* of self-consciousness" (1997, 3 my emphasis). Likewise, he argues that "a self-conscious subject must be aware of itself qua subject as shaped, located, and solid" (Cassam 1997, 5). This claim entails that every instance of introspective awareness, i.e. of self-awareness, necessarily involves bodily awareness (experiencing the self as a physical object): whenever self-awareness occurs, bodily awareness *must* also occur. This claim can be understood as a dependence claim: self-awareness depends on bodily awareness. The dependence relation also explains why whenever we are self-aware, we are also bodily aware. On the other hand, some argue that the dependence relation goes in the other way: bodily awareness depends on self-awareness (Longuenesse 2006, Shoemaker 1968).

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[164] See Cassam, 1995, 1997; Evans 1982; see Strawson (1959; 1966) for a source and an approach that Cassam heavily draws on. Cassam has since changed his view, and now thinks that bodily awareness is sui generis (2011, 151). I will continue to discuss his previous, more worked out account of bodily awareness. Bermúdez (1998; 2011) also thinks that bodily awareness is a form of self-awareness. Dokic (2003) assumes that bodily awareness is IEM; Brewer argues that "experienced embodiment just is a presentation of the subject as a spatially extended body." (1995, 306).

A different thesis, which also seems to figure in Cassam's discussion, is that bodily awareness can qualify as a form of self-awareness qua subject, or introspective self-awareness. For example, Cassam suggests that bodily awareness can be regarded as a genuine "*form* of self-awareness" (Cassam 1995, 329 my emphasis)[165]. This thesis is different from the previous one: the relation between self-awareness and bodily awareness is not only one of entailment or of dependence, but rather, the latter counts as *a form of* the former: bodily awareness "from the inside" is awareness of oneself qua subject (namely, as a physical object). According to other views there is a much looser connection between bodily awareness and self-awareness. According to Martin, for example, bodily awareness should not be assimilated into self-awareness, i.e. it is not a form of self-awareness (1995). Presumably, this view does not entail that bodily awareness is not awareness of something qua subject, since it is compatible with the view that there are two distinct ways of being aware of something qua subject, namely bodily awareness and self-awareness.[166]

There are three main ways to specify the relation – assuming there is an interesting kind of relation – between bodily awareness and self-awareness:

(1) *Form of*: Bodily awareness is a form of self-awareness.

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[165] Cassam also talks about this thesis in a sense that seems stronger, namely identity. For example, he discusses the claim that "bodily awareness from the inside' *is* introspective self-awareness" (1995, 329 my emphasis), and elsewhere he discusses the claim that "bodily awareness is self-awareness to the extent that it is awareness of one's body qua subject" (2011, 148). One might understand these statements as expressing the idea that the right kind of bodily awareness just is self-awareness qua subject. However, Cassam also formulates this idea in terms of "form of…", e.g. when he asks "is bodily awareness a form of self-awareness?" (2011, 148). The latter claim seems like a weaker claim that might be easier to defend. For this reason I will focus on the "form of…" claim.

[166] While this is not how Martin understands the issue (1995), this is clearly a possibility in logical space. For example, one could be aware of something qua subject in a variety of ways, some of which characterize bodily awareness but not self-awareness.

(2) *Dependence*: Self-awareness depends on bodily awareness.[167]

(3) *Token identity (without type identity)*: Bodily awareness and self-awareness are sometimes token identical.

(1) and (2) are extracted from the preceding discussion. According to claim (3), bodily awareness and self-awareness can be, and sometimes *are*, token identical, i.e. sometimes an event (or property instance) of being bodily aware is identical to an event (or property instance) of being self-aware. But being bodily aware and being self-aware are not identical types or properties.

I will cite some reasons to reject (1). I then will argue that even if (2) turns out to be false, there is a different dependence claim that reverses the order of dependence, according to which bodily-awareness depends on self-awareness:

(2)* Bodily awareness depends on self-awareness.

If the defense of (2)* goes through, then, I will argue, the claim that self-awareness depends on bodily awareness is false. Lastly, I will argue that we should accept (3). In order to argue for (3), I will draw on (2)* as well as on some phenomenological considerations. I will suggest that accepting (3) might also help explain why we might be drawn to (1).

[167] I am phrasing this thesis in terms of dependence, rather than one form of awareness being necessary for the other because the latter way of expressing the thesis is too broad. It might be true that if I am self aware, I am also bodily aware, but it is likewise true that if I am self-aware, then 2+2=4. Stating the thesis in terms of dependence captures something more informative than a simple material conditional.

The 'form of' thesis

The claim that bodily awareness is a form of self-awareness should not be understood as a claim about awareness of the body as an object, but about the mode of presentation of one's body in bodily awareness, at least of certain kinds. If the claim were only about what one is aware of, it would not be very interesting. For example, if we think that we are identical to our bodies, then the claim that bodily-awareness is self-awareness simply follows from that claim: we could simply substitute 'self' with 'body' salva veritate. Normally, philosophers interested in the relation between bodily awareness and self-awareness have in mind something like the following. What is the relation between self-awareness qua subject and bodily awareness qua subject? According to this thesis bodily awareness is a form of self-awareness in the sense that "it is awareness of one's body qua subject" (Cassam 2011, 148). So the claim that bodily awareness is a form of self-awareness should be understood as a claim about a certain mode of presentation (or mode of access): bodily awareness (of the right kind) is a way of being self-aware.

In the preceding section I mentioned three criteria Cassam suggests for something to count as awareness of something qua subject, namely the *tentative conditions for awareness qua-subject*. If bodily awareness meets these criteria, it is a form of being aware of something qua subject, and thus a form of self-awareness. I will go over each of the conditions and give some reasons for rejecting them. It will emerge from the discussion that an assimilation of bodily awareness into self-awareness is unlikely to be successful.

According to the first condition for awareness of something qua subject, specified in the *tentative conditions for awareness qua-subject*, one must be aware of it as one's point of view on the world. Being aware of it as one's point of view on the world does not entail that one is aware *that* it is one's point of view on the world, that is, it does not entail that one is also entertaining some propositional content.[168] This seems plausible: it is intuitive to think that perception is perspectival, and the content of perception is egocentric.[169] It therefore seems plausible that in order to perceive anything one must be (in some sense) aware of oneself as the center of one's perceptual content.[170] And for one's body to function in this way "just is for one to be aware of it as one's point of view on the world" (Cassam 2011, 148). Cassam, however, rejects this claim. He argues that various modes of perception will have different parts of the body that serve as the center of orientation in different instances, e.g. vision will have the head as the center of orientation, whereas tactile perception will have the entire body (2011, 148).

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[168] Under some circumstances, one would be justified to make the inference from being aware of p to being aware that p. But this move does not entail that when one is aware of p one is also aware that p. The claim that one is aware of something as one's point of view on the world should be understood as the claim that one experiences it as such (at least if we want to be charitable to how this kind of awareness figures in some of the following discussion).

[169] For the purpose of this chapter I will not justify these claims, but assume their plausibility. Dokic and Pacherie deny that perception is perspectival and that its content is egocentric. More specifically, they deny that perception must involve an explicit frame of reference; they argue that "the egocentric localization of a position in space does not depend on a prior identification of a body and does not presuppose an explicit representation of oneself as a term of a spatial relation to the position" (2006, 275). They do, of course, accept that "it must be possible to exploit spatial relations between parts of our body and the world in order to perceive anything, but this is a condition for the possibility of spatial represent*ing*, not something that is itself spatially represent*ed*" (275). One could argue, however, that these claims are compatible with the view that perception is perspectival and egocentric. Furthermore, it is unclear what it means that there is no prior *identification* of a body required for the egocentric localization of a position in space. Cassam could argue that there is no need for identification because it is given that one's body is oneself – there is no need to first identify it. Perhaps the claim they are getting at is expressed by Brogaard: "I do not normally experience one tree as being further away than another relative to me or a blue ball as being two feet away from me, to the right of me. I just experience one tree being further away than the other or a blue ball being two feet away, to the right. The content of visual experience leaves the perceiver out of the picture, so to speak" (2010, 387). Glüer, however, disagrees with the claim, arguing that the subject is phenomenally present in an experience just in the sense that perceptual space is egocentric (2016).

[170] Schwenkler also defends the view, which he calls the *Self-Location Thesis:* "simply in virtue of its perspectival character, visual experience can include the location of the perceiver among its face value contents" (2014, 139).

Furthermore, even if objects are always perceived in spatial relations to specific body parts, this claim does not justify the additional claim that one is aware of that part as one's point of view on the world (2011, 148).[171][172]

According to the second condition for awareness of something qua subject, one must be aware of it as the bearer of one's sensations and other mental states. We are conscious of our sensations as having bodily locations. For instance, when I feel a pain in my left leg, the pain seems to be located in a specific location of my body. However, Cassam argues that there is a gap between the idea that one's body is the presented subject of sensation and the idea that one's sensations present themselves as having a bodily location. Cassam does not elaborate here, but he might have the following line of thought in mind. Suppose I have a certain bodily sensation, e.g. an itch. The sensation has a bodily location, e.g. my back. However, this does not entail that the body of that sensation is presented as the subject of the sensation. For instance, the body could be associated with the subject, while not presented as identical to the subject. And even if there was no gap, Cassam states that beliefs do not appear to have bodily locations in the same way as sensations, so it is difficult to "make anything of the proposal that [the body] is the presented subject of belief" (Cassam 2011, 148-149). The last claim, concerning the difference in presentation between beliefs and bodily sensations, seems

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[171] In (1997) Cassam argues that the claim that the body and the ego are not the same thing can be countered by showing that there is no gap "between intuitive awareness of the location and solidity of the body and the intuitive awareness of the location and solidity of the self" (58).

[172] In (1997) Cassam argues that mere geometrical perspective on the world is insufficient for being in a position to think of one's experience as experience of objects in the weighty sense (i.e. material object that are three dimensional, have weight, etc): "it is not enough simply that one has *some* conception of self-location. It is also essential that one has the conception of one's location as a genuine causal constraint on what one can perceive. The problem with the notion of merely geometrical self-location is that it does not provide for this" (1997, 45). Note, however, that this argument is in the context of the concept version of his argument rather than the intuition version; i.e. it is not yet about intuitive self-awareness. Presumably, however, the same sorts of considerations would apply to intuitive self-awareness.

unclear. Cassam does not further explain why we should expect that beliefs present themselves to the subject in the same way as bodily sensations.

One might push the following line of thought against Cassam. It is true that the body is not (or at least not necessarily) presented as the subject of belief. However, this does not entail that bodily awareness is not a form of self-awareness, because it is unreasonable to expect that when I believe something, my body is somehow presented to me as the subject of that belief. This claim relies on the more general idea that even if bodily awareness is a form of self-awareness, it needn't possess all the features of non-bodily self-awareness. It could be that bodily and non-bodily self-awareness do not share all their features. We can find an analogous line of thought in discussions about whether self-awareness is a form of perception, or quasi-perceptual. Some of the discussion revolves around trying to show that bodily-awareness meets the criteria of perception, e.g. the ones found in the Perceptual awareness model I specified above, which is drawn from Shoemaker:

> 1. The identification constraint: we can single out an object among a variety of other objects, and we can keep or lose track of a singled out object over time (Ávila 2016, 2).
> 2. The multiple-objects constraint: "ordinary modes of perception admit of our perceiving, successively or simultaneously, a multiplicity of different objects" (Shoemaker 1986)

> 3. Perspectival character: we perceive objects from a particular point of view and they appear to stand in spatial relations to ourselves. (see Ávila 2016 for a more details of these features).

Bermúdez, for example, tries to argue that (3) is not constitutive of all perception, and so we only need to show that bodily awareness meets the identification constraint and the multiple-object constraint. Gallagher, on the other hand, argues that bodily awareness is not perceptual because it doesn't meet these constraints (for a discussion of their accounts see Ávila 2016). However, as Ávila points out, neither Bermúdez nor Gallagher offer an argument for their understanding of these features as necessary for all forms of perception (2016, 13). Furthermore, it is unclear that the above model can be generalized to all forms of perception, and even Shoemaker points out that the above model does not capture the features that all forms of perception have in common (Shoemaker 1996, 204; Ávila, 2016). For example, Shoemaker notes that we can "smell a skunk without gaining perceptual identifying information about whether the smell comes from one or several skunks" (Ávila 2016, 13).

However, if we understand Cassam as arguing against a slightly different claim, namely that self-awareness cannot occur without bodily awareness, we can understand his argument as following. Even if the body were presented as the subject of various bodily sensations, it seems unreasonable to suppose that it also appears to be the subject of mental states (e.g. the belief that Berlin is in Germany). Therefore, since self-awareness of the kind present in belief can occur without bodily awareness, it is hard to see why self-awareness would require bodily awareness. This may be a good argument

against the dependence claim (2), but it is unclear how this line of thought can undermine the "form of…" claim.

Suppose that one can defend conditions (a) and (b), namely the conditions that awareness qua subject is awareness of [oneself] as one's point of view on the world (a) and that awareness of [oneself] as the bearer of one's sensations and other mental states (b). Even if we think that bodily awareness meets these criteria, it does not yet imply that bodily awareness is a form of self-awareness. I will now focus on condition (c), namely the idea that awareness of something qua subject is a form of awareness that does not allow for misidentification. I will focus on this condition because it seems like a more promising approach than the latter two conditions (Cassam 2011, 149). According to this condition, if bodily awareness grounds IEM judgments, then (if it also satisfies the previous conditions) it is a form of self-awareness. However, there is reason to doubt this claim. Shoemaker presents a challenge to thinking that bodily awareness can be a form of self-awareness (awareness of oneself qua subject). If a statement "a is Φ" is IEM the following cannot occur: "the speaker knows some particular thing to be Φ, but makes the mistake of asserting "a is Φ," because, and only because, he mistakenly thinks that the thing he knows to be Φ is what 'a' refers to (Shoemaker 1968, 557). 'I' used as subject (or qua subject) is immune to such an error in the following way. It is not possible for me to think "I have a toothache" and be wrong about the fact that the toothache pertains to me. According to Shoemaker bodily awareness cannot be IEM for the following reason. Identification "necessarily goes together with the possibility of misidentification" (Shoemaker 1968, 562). Therefore, awareness of something as an object cannot serve as a basis for statements that are IEM. If one is aware of something as a material object

among other objects in the world, then it must be possible to misidentify it. And if that is the case, then awareness of something as an object cannot be IEM. For that reason, it is incompatible with awareness of something qua subject, which must be IEM (Cassam 1997, 61). Furthermore, Cassam argues that meeting the IEM condition should not be exaggerated, for IEM is a relatively widespread phenomenon that also applies to demonstrative judgments like 'this is red' (2011, 149). Since the IEM condition is also discussed in connection with the dependence thesis, I will elaborate this point in the next section.

Cassam argues that even if the tentative conditions for awareness qua subject were all met, it would still not follow that "bodily awareness is self-awareness" (2011, 149).[173] Here, he agrees with Martin (1995), who argues that since it makes sense (i.e. is possible) to wonder whether the object one is presented with in bodily awareness is oneself, or just an object closely associated with oneself, "that object cannot be presented to [the subject] as being the self" (1995, 284). It makes sense to wonder whether in, e.g. bodily sensation one is presented with oneself because even if the object of bodily sensation and oneself coincide, they do not coincide a priori (Cassam 2011, 149). The requirement that bodily awareness must meet the a priori condition in order to count as a form of self-consciousness derives from the fact that self-consciousness (or some self-ascription of mental predicates) is usually taken to meet this condition. If bodily awareness does not meet these conditions, it cannot be a form of self-consciousness. Given that bodily awareness does not a priori refer to one's own body, bodily awareness

[173] Note that Cassam (2011) begins the section with the question "is bodily awareness *a form* of self-awareness?" (148, my emphasis), but then discusses the thesis that bodily awareness is self-awareness. Since the first claim is arguably weaker, and easier to defend that the claim that bodily awareness is self-awareness, I focus on that claim. In addition, it also seems to be the claim that Martin has in mind, when he argues that bodily awareness should not be assimilated to self-awareness (1995).

is not a form of self-consciousness. For instance, thoughts that express self-consciousness, like 'I see a red bird', are IEM relative to the first person perspective: I may be wrong about the content of my visual experience, but I cannot be wrong that it is I who is having the visual experience. It doesn't make sense to ask who it is that is having this visual experience. However, in being bodily aware it is possible to be wrong about whose body it is that I experience as my own. And since the possibility of error exists, bodily awareness is not IEM, unlike self-awareness. [174]

Note, however, that there might be a different way to argue that bodily awareness is a form of self-awareness. So far, we assumed that self-awareness is not perceptual, or not quasi-perceptual. However, one could argue that if self-awareness (or more precisely, introspective self-awareness or introspection)[175] is perceptual, or quasi-perceptual, then it might be easier to see how bodily awareness, which is often thought to be perceptual, can be a form of self-awareness. According to this model, we gain first-person knowledge of out own mental states in a way analogous to perceptual knowledge. Against this model, Shoemaker offers the following argument. If introspection were analogous to perception, then the relationship between beliefs and knowledge of them would be contingent, just like the relationship between perception and objects of perception. However, if that is the case, then it is possible that an agent could be self-blind, i.e., that an agent could "lack any introspective awareness of their own mental states" (Kind 2003, 39). A self-blind subject, George, lacks self-acquaintance with his own beliefs, that is, he lacks "self-

[174] Of course, this entails the following argument: self-awareness is essentially de se; bodily awareness is not essentially de se. Therefore, bodily awareness is not identical with self-awareness (I thanks Mark Rowlands for pointing it out to me). Note, however, that here the issue is not whether bodily awareness is identical with self-awareness, but whether bodily awareness is a form of self-awareness. Being essentially de se would be a criterion for being a form of self-awareness (and not necessarily identical to self-awareness).

[175] Sometimes self-awareness and introspection are taken to mean roughly the same thing, while in other discussions it seems that introspection and self-awareness are distinct. This will becomes clear in the next section, when I discuss the dependence claim.

knowledge acquired by the special access that one has to one's own mental states" (Kind 2003, 39). Importantly, while George is self-blind, he can gain knowledge through third-person access. These claims (that George is self-blind, yet can gain self-knowledge on third-person basis) taken together lead to Moore's paradox, which concerns sentences of the form '*p*, but I do not believe that *p*'. According to Shoemaker, a situation can arise in which

> all the evidence that George has points towards *p*, even though the third- person evidence available to him about his own mental states points toward the fact that he does not believe that *p*. Of course, the third-person evidence available to George about his own mental states will include not only (a) whatever evidence he has that supports *p*, but also (b) his own assertions of *p*, both of which presumably support that judgment that he believes p. But the rest of the third-person evidence available to George might be of sufficient strength to override (a) and (b). It seems reasonable to suppose that if such circumstances were to arise, George might make a Moore-paradoxical judgment, and moreover that he might assert this judgment aloud. (Kind 2003, 42)

The argument is presented by Kind as follows:

> 1. George is equal in intelligence, rationality and conceptual capacity to a normal (i.e., not self-blind) person

2. If someone is equal in intelligence, rationality and conceptual capacity to a normal person, his behavior provides the best possible evidence that he is aware of his own beliefs and desires to the same extent as a normal person would be

3. George's behavior provides the best possible evidence that he is aware of his own beliefs and desires to the same extent as a normal person would be

4. Thus George is aware of his own beliefs and desires to the same extent as a normal person would be

5. Thus George is not self-blind. (Kind 2013, 44)

However, Kind suggests that the main problem with Shoemaker's argument is the move from (4) to (5). Specifically, the problem arises because he conflates self-knowledge with self-acquaintance. While (4) tells us to what extent George is aware of his beliefs and desires, it does not tell us about *how* he acquired these beliefs and desires. And since it doesn't tell us how he acquired his beliefs and desires, it leaves open the possibility that he acquired this awareness by means other than self-acquaintance. So (4) is consistent with the claim that George is self-blind, but "has acquired the normal extent of awareness of his own beliefs and desires via third-person access to these states" (Kind 2003, 45). The reason that he might lack self-acquaintance and yet have self-knowledge is that self-blindness only requires that he lack self-acquaintance, not self-knowledge. Since (4) is compatible with George lacking self-acquaintance, the claim that George is not self-blind does not follow (Kind 2003, 45). If Kind's argument goes through, then it blocks one argument against the claim that introspection is quasi-perceptual.

While Kind's argument is not yet a positive argument for the position that introspection, or self-awareness, is quasi-perceptual, it does remove one obstacle the position might face. Whether bodily awareness if a form of self-awareness depends on whether we think that the other features of self-awareness, e.g. awareness of the kind that gives rise to judgments that are IEM, are necessary features. This might be a more important feature of self-awareness.[176] So even if construing self-awareness as quasi-perceptual does not lead us to Moore's paradox discussed above, it shouldn't be construed as quasi-perceptual because perceptual states normally do not give rise to judgments that are IEM.

I will not attempt to adjudicate the debate here. What is important is that there are some good reasons to think that bodily awareness is not a form of self-awareness. However, according to a different claim in the vicinity, there is an interesting connection between bodily awareness and self-awareness, namely that the latter depends on the former. I will now examine this latter thesis.

The Dependence Claim

According to Cassam, bodily awareness is a necessary condition for self-awareness (1997). There are two ways to understand this claim. First, if I am self-aware, I am bodily aware. According to this interpretation the relation between the two forms of awareness does not suggest that one is prior, or more fundamental than the other. This

[176] Bermudez, for example, argues that bodily awareness is perceptual. However, he also wants to claim that it is a form of self-awareness. And a distinctive feature of self-awareness, according to him, is that it gives rise to IEM judgments (see Bermúdez 2011, especially 166-167).

interpretation is also compatible with the following conditional: if I am bodily aware, then I am self-aware. The second way to understand Cassam's statements is as a claim about a dependence relation between bodily awareness and self-awareness. The dependence relation should be understood as follows: x is possible only if y exists/is present. In this context, then, the claim is that self-awareness is only possible if bodily awareness is present (this is (2) above, the dependence claim).

By contrast to Cassam, I will suggest that although a dependence relation may exist between bodily awareness and self-awareness, it is not the one he suggests. The claim I will defend is that bodily-awareness depends on self-awareness (this is (2)* above). If this latter claim is true, however, then self-awareness cannot depend on bodily awareness, since the relation between them is anti-symmetric. So the main argument in this section will be:

P1) Either bodily-awareness depends on self-awareness or self-awareness depends on bodily awareness, and not both.[177]

P2) Bodily awareness depends on self-awareness.

C) Therefore, self-awareness does not depend on bodily awareness.

Note that this argument does not refute the claim that bodily awareness is necessary for self-awareness, since this claim is compatible with self-awareness also being necessary for bodily awareness. Presumably, the claim that Cassam argues for is stronger than a merely modal claim, and it seems that this is also how Longuenesse understands his

[177] To see why, consider the discussion of the "form of…" claim. Since it seems possible for one kind of awareness (namely self-awareness) to be present without the other, the relation between them cannot be mutual dependence.

position. Furthermore, the dependence claim is a generally more interesting claim, for it tells us what type of awareness is prior to, more fundamental than, or explains the other.

The dependence claim can be understood in two main ways, depending on what one thinks the (numerically identical) subject of experience is: first, one can understand the subject of experience as the empirical subject. Roughly, this is the substrate, as a bearer of perceptual states, "whose experiential route through the world determines spatio-temporal enabling conditions of perception" (Longuenesse 299). This seems to be how Cassam undertands the subject of experience (Longuenesse 299). Second, one can think of the subject of experience as follows:

> [It is] the agent, *whatever that agent might be*, of the act of combining and comparing representations by way of which spatio-temporal enabling conditions for recognizing independently existing objects become available for cognition in the first place. Referring to oneself as this agent is certainly not referring to an object in the sense expounded in the previous section of this paper. There is nothing to identify or re-identify as a particular object. (Longuenesse 299)

Note that self-awareness, in this second sense, does not involve awareness of an object that meets the identification constraint (namely, the constraint that the object can be singled out among a variety of other objects, and which can be lost or kept track of and singled out over time).[178]

[178] In addition, some argue this subject, or "I", is mere activity, while others argue it is a logical object (see Rosefeld (2006) for a discussion of this debate; he argues for the latter position). For the purpose of this chapter it does not matter how exactly we construe this sense of a subject. What matters is that it is not an object that can be identified and reidentified over time, and also not singled out among other objects.

The distinction between these two basic ways of thinking about the subject will prove useful when I examine the dependence claim, according to which self-awareness depends on bodily awareness. The subject that figures in Cassam's defense of the claim that self-awareness depends on bodily awareness is the empirical subject. I will first examine his argument for this claim and then discuss Longuenesse's response to his account. If her response to his account is successful, it establishes the claim that it is bodily awareness that depends on self-awareness, where self-awareness is of the kind that isn't taken to refer to a thing (this is the second sense, specified above). But even if we reject the Kantian framework that she appeals to in arguing against Cassam, Shoemaker presents further reasons to suppose that bodily awareness depends on self-awareness. I will first examine the idea that self-awareness depends on bodily awareness. After examining this idea, I will motivate the claim that bodily awareness depends on self-awareness.

Cassam (1997) defends what he calls a materialist account of self-consciousness.[179] According to this account, we are presented to ourselves, qua subject, as material objects. We could not be self-aware (or self-conscious) unless that state of self-awareness was also awareness of ourselves as physical objects among other physical objects. For, according to Cassam, being aware of the self qua subject as a physical object, i.e. being bodily aware qua subject is a necessary condition for being able to ascribe one's perceptions and experiences to oneself. There are two versions of materialism about self-consciousness. On the concept version, we must conceive of

[179] Although Cassam calls his thesis 'materialism about self-consciousness' (1997, 2), he uses the expression 'consciousness' as well as 'awareness'. For the purposes of this chapter I will treat the expressions as equivalent. Longuenesse also notes that Cassam uses the expression "awareness" where Kant uses Bewusstsein, which is often translated as "consciousness" (2006, 306).

ourselves as physical objects among others, while on the intuition version we must be intuitively aware of ourselves as physical objects among others (Cassam 1997, 6; 9). To be intuitively aware of something means to be immediately aware of it without that awareness being necessarily accompanied by belief (Longuenesse 2006, 288).[180] I will focus on the intuition version of the argument, since Cassam also claims that while the concept version may be rejected, the intuition version is more successful (Cassam 1997, 27). More importantly, it will be more instructive to discuss this version of materialism about self-consciousness, or about self-awareness, because the main claim examined in the chapter does not rely on any claim about conceptual abilities.

According to Cassam, being intuitively aware of oneself qua subject of experience just is being aware of oneself as a physical object among other physical objects, i.e. being bodily aware. One of the arguments he presents in favor of this view is the objectivity argument. Longuenesse has the following helpful presentation of Cassam's argument:

> (P1) We think of our experience as including perceptions of independently existing objects.
>
> (P2) One can think of one's experience as including perceptions of independently existing objects only if one is aware of the identity of oneself as the subject to which the perceptions are ascribed.
>
> (P3) For the awareness of the numerical identity of the subject to do its work, one must be aware of the subject as a physical object.

[180] Note that this does not rule out that there might also be an accompanying belief. But that belief would be an additional, distinct awareness that something presents itself in a certain way. The claim that there *can* be an accompanying belief is not enough to render the intuitive awareness into a propositional awareness (or awareness that).

> (C) So, we are aware of ourselves, qua subjects as physical objects in a world of physical objects. (Longuenesse 2006, 287)

The kind of awareness that is necessary for self-awareness, according to Cassam, is awareness of oneself as a physical object *qua subject.* Here, the IEM criterion, mentioned in the *tentative conditions for awareness qua subject*, is especially important. For according to Cassam "awareness of something qua subject of one's thoughts is, *by definition*, a form of awareness which does not require the identification of a presented object as oneself" (1997, 24 my emphasis). Here, he draws on Shoemaker's terminology: "awareness of oneself qua subject must be such that, upon the basis of such awareness, it is possible to make first-person statements that are 'immune to error through misidentification' relative to the first-person pronoun" (Cassam 1997, 24). So the argument above can work only if one can, indeed, be aware of oneself *qua subject as a physical object*.[181] If bodily awareness cannot be awareness of oneself qua subject as a physical object, then, at least according to Cassam, the dependence claim is not true.[182] I will first briefly discuss Cassam's argument in favor of the claim that one can be aware of oneself qua subject as a physical object. I will then present two ways to argue for the claim that bodily awareness depends on self-awareness. One of these ways will fall out of Cassam's discussion, and is a line of thought presented by Longuenesse. The other way to argue for this claim is by drawing on Shoemaker's work on introspection. I will begin

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[181] For instance, Cassam claims that "the sense in which, according to the Objectivity Argument, self-consciousness requires awareness of oneself as a physical object is that it requires awareness of oneself qua subject as shaped, located, and solid." (1997, 55)

[182] One might argue, however, that it is unclear why, for the dependence claim to be true, bodily awareness must share a feature in common with self-awareness, namely immunity to error through misidentification, or even awareness of something qua subject more generally. For the sake of the argument I will not further discuss this point.

by considering an objection to Cassam's "form of…" view. According to the objection, the right way to think of the relation between bodily awareness and self-awareness is as a dependence relation: bodily awareness depends on (a particular kind of) self-awareness. I will then discuss Shoemaker's claim that in some sense bodily awareness depends on self-awareness.

According to Cassam's line of thought, we are aware of ourselves, qua subjects as physical objects. This is necessary for us to be able to experience objects in the weighty sense (independently existing material objects). However, one may think that an awareness of something cannot be both awareness qua subject and awareness as a physical object, i.e. that the two forms of awareness are incompatible: bodily awareness, i.e. awareness of something as a physical object, can never at the same time be awareness of something qua subject. In the previous section I mentioned Shoemaker's argument against assimilating bodily awareness into introspective self-awareness. That line of thought also puts stress on the claim that the two forms of awareness are compatible. Shoemaker argues that bodily awareness cannot be IEM, since identification, which is involved in awareness of something as an object, "necessarily goes together with the possibility of misidentification" (Shoemaker 1968, 562). Therefore, awareness of something as an object cannot serve as a basis for statements that are IEM. If one is aware of something as a material object among other objects in the world, then it must be possible to misidentify it. And if that is the case, then awareness of something as an object cannot be IEM. Therefore, bodily awareness is incompatible with awareness of something qua subject, which must be IEM (Cassam 1997, 61).

Unlike Shoemaker, Cassam (following Evans) previously defended the view that

since bodily awareness can be IEM, it is compatible with – and is a form of – awareness of something qua subject. For example, self-ascriptions based on certain bodily sources of awareness, e.g. proprioception, are IEM. Judgments regarding the position of my limbs are IEM, and are therefore based on an awareness of myself qua subject. However, consider the following counterexample: I am somehow hooked up to someone else's proprioceptive system, and receive information about the position of her limbs and her location. Is this a counterexample to the claim that bodily awareness (of a certain kind at least, e.g. based on proprioception) is IEM? Cassam, following Evans, thinks that this scenario does not undermine the claim that bodily awareness is IEM. A counterexample to IEM would have to involve misidentification, but the mistake here is not one of identification. For my judgment about my self-location or the position of my limbs to be subject to error through misidentification, it must be at least expressive of knowledge that *someone* is located where I think I am located, or that *someone's* limbs are thus aligned. But this condition is not satisfied; while my belief may causally depend on someone else's proprioceptive system, "it is not sufficient for knowledge that a true belief be causally dependent on the facts which render it true" (Evans 1982, 245). I therefore do not know that someone's limbs are thus aligned or that someone is located where I think I am, but that person is not I. Since in this case the judgments is not expressive of knowledge about anyone located in that place and is not expressive of knowledge that someone's limbs are thus and so aligned (Cassam 1997, 62-63). Therefore, these mistakes are not mistakes of *identification*: for something to be an error of misidentification, rather than a mere error, "the subject must still know that *something* is F" (Chen 30).

Longuenesse raises the following worry about Cassam's approach: awareness of anything at all as an object requires both identification and tracking through time for reidentification, whereas I-thoughts that are IEM not only at a particular time, but also through time, in a way that *does not require any particular skill for identification or reidentification* (2006, 296). IEM is not a feature particular to I-judgments – some demonstrative judgments are also IEM. For example:

> I can move from 'this is red' to 'this was red yesterday' only if I make sure the 'this' I am pointing to is indeed the one about which I said or thought yesterday: 'this is red.' But moving from 'I am standing in front of the table' to 'I was standing in front of the table yesterday' does not require any particular skill or technique for reidentifying the referent of 'I.' neither does the move from 'I am angry' to 'I was angry' or 'I see a canary' to 'I saw a canary.' (Longuenesse 2006, 296)[183]

Cassam responds as follows. We can understand the locution "to be aware of something as an object" in two different ways. According to the narrow notion being aware of something as a physical object is being aware of it as located, shaped and solid, and "for one's awareness to involve the exercise of an ability to keep track of the object" (Cassam 1997, 71). In the broad sense being aware of something as physical object is being aware of it as a persisting thing that is shaped and that occupies space (Cassam 1997, 71). Since

[183] One may wonder why the claim that no particular skill is required entails that a statement based on that kind of awareness is IEM. But I will assume this point is not unobvious for the sake of the argument. For more on the difference between first-person judgments and demonstrative judgments see Shoemaker (1986). There, he argues that while first-person judgments that about the past are identification free, demonstrative judgments about the past are not.

the narrow notion involves the ability to keep track of an object for its identification and reidentification, it is incompatible with awareness of something qua subject, which necessarily does not involve that skill. However, the broad notion does not require such tracking skills, and is therefore compatible with awareness of something qua subject, which does not involve those skills. (Cassam, 71-72; also discussed in Longuenesse 2006, 297).

Longuenesse argues that this response rests on an equivocation concerning the word "object". The narrow notion is epistemological: various abilities of the agent, such as keeping track of an object over time, figure into the definition of the object. By contrast, the broad notion is ontological: the agent does not figure into the definition of an object in the broad sense at all. An object, in the broad sense, is just a physical object (which can be a human animal, a dog or a chair). So the claim that one cannot be aware of oneself qua subject as a physical object in the narrow sense amounts to the trivial claim that one cannot be aware of oneself qua subject qua object. Recall that "qua" introduces a mode of access; one form of awareness cannot be qua subject (a mode of access that does not require any particular skill for identification or reidentification) qua object (a mode of access that does require a particular skill for identification and reidentification). By contrast, there is no incompatibility between awareness of something qua subject as an object.[184] Longuenesse's discussion brings to the fore the following point, which she does not explicitly state. If bodily awareness is awareness qua subject, then bodily self-ascriptions based on bodily awareness of a particular kind must be IEM. But they cannot be IEM: for awareness of a physical object to meet this condition, it

[184] Longuenesse also notes that it might be possible to be aware of oneself at the same time qua subject *and* qua object. On some interpretations this is what Merleau-Ponty had in mind (2006, 298).

would have to be the kind of awareness that does not require a particular skill for identification and reidentification. Her considerations seem to rest on Shoemaker's argument against the construal of introspection as perceptual. According to him, perception is a source of identification information about the objects of perception, which we use to reidentify or track those objects over time, with a possibility of misidentifying them. By contrast, introspection is not a source such information about the self (Shoemaker 1986).[185] Note, however, that the point about the incompatibility of these two types of awareness does not mean that bodily awareness is awareness of oneself qua subject *as* a physical object. It does, however, mean that the kind of access involved in awareness of something qua subject is incompatible with the kind of awareness of something qua object.[186]

In her discussion of Cassam, Longuenesse also suggests a different claim, which can be used to motivate the idea that bodily awareness depends on self-awareness (P2 in the main argument of this section). She explains that while Cassam and Kant share the idea that "experience of independently existing objects is possible only if one is capable of ascribing one's representations to oneself as the numerically identical subject of those representations" (Longuenesse 2006, 299), they do not mean the same thing by "numerically identical subject" (2006, 299). For Cassam, this subject is an empirical

[185] According to Shoemaker if we construe our introspective awareness of ourselves as a kind of perception, then there are two options, each of which is incompatible with the features of perception specified above: "There is for each person exactly one (nonadjectival) object, namely himself, that is perceived by that person in this way…or, at least, there is exactly one self that the person can perceive in this way. In the latter case there can be no such thing as picking out a self and distinguishing it from other selves by its introspectively perceived properties; and in the former case there can be no such thing as picking out a self and distinguishing it from other perceived things, of any sot whatever, by its perceived properties" (1986, 108).

[186] I should note that Cassam seem no longer to be convinced by his argument for materialism about self-consciousness that appeals to IEM. The reasons for this denial are the ones cited in the previous section, namely that it is doubtful that IEM of some bodily self-ascriptions is *sufficient* to justify the claim that materialism about self-consciousness is true, since it is a phenomenon that characterizes demonstrative judgments, and not just self-ascriptions based on awareness of oneself qua subject. So even if bodily awareness (as object) were IEM, it would not be a sufficient indicator for it being awareness of oneself qua subject.

subject, or a bearer of perceptual states, "whose experiential route through the world determines spatiotemporal enabling conditions of perception" (2006, 299). By contrast, for Kant the numerically identical subject is the agent – whatever it may be – of the act of "combining and comparing representations by way of which spatiotemporal enabling conditions for recognizing independently existing objects become available for cognition in the first place" (2006, 299). The latter sense of a subject, unlike the former, does not refer to any physical object. There is a certain unifying function at work in combining my representations, in virtue of which I can also later ascribe these representations to one and the same subject. However, what Kant calls "transcendental self-consciousness" is not consciousness of ourselves as identifiable and reidentifiable objects. The reason is that it is a logical subject, and therefore not a thing at all: "it is just the focal point, for each of us individually, of the…unitary act of binding representations" (Longuenesse 2006, 304).[187] Transcendental self-consciousness is necessary for one to be able to ascribe any representations to oneself - physical or mental. For this reason, one might argue that bodily self-awareness depends on this form of consciousness. Note that this kind of self-awareness or self-consciousness is *of a different kind* than has been the subject of discussion thus far.

However, in his discussion of use of 'I' as subject and use of 'I' as object Shoemaker echoes a similar point, which is related to the notion of self-awareness that has been discussed so far: his line of thought is not concerned with transcendental self-awareness. He argues that the use of 'I' as subject is more fundamental than the use of 'I'

[187] If we agree with Longuenesse that a focal point is not a thing, we should perhaps understand is metaphorically, i.e. we should not understand it as a point that is presented as belonging to a certain spatially extended body. Otherwise, it is hard to see why we cannot quantify over focal points, and why they are therefore, not "things".

as object (Shoemaker 1968, 566). Before explaining what Shoemaker might have in mind by the term 'fundamental', it will be useful to remind ourselves of what the use of 'I' as subject and as object means. 'I' is used as subject is statements such as 'I am in pain', in which it is impossible for me to be mistaken in asserting this because even though I know someone is in pain, I mistakenly think that person is me. 'I' is used as object in statements like 'I am moving my arm' because we can imagine a scenario where I have misidentified someone else moving her arm as myself (e.g. when I look in the mirror and see someone moving an arm) (Shoemaker 1968, 557). To see why Shoemaker thinks that the former use of 'I' is more fundamental, he asks us to consider the following. Call P* predicates the class of psychological predicates, each of which "can be known to be instantiated in such a way that knowing it to be instantiated in that way is equivalent to knowing it to be instantiated in oneself" (Shoemaker 1968, 565). The self-ascription of such predicates is IEM. Now imagine a community that speaks a primitive language. The language contains a first-person pronoun, but no P* predicates. The only predicates self-ascribed by the speakers of this language are predicates that don't imply their possessors have any consciousness; call these predicates M-predicates (e.g. 'is tall', 'is facing a table'). Under what conditions can speakers self-ascribe predicates like 'is tall' or 'is facing a table'?

> In order to describe the circumstances in which such self-ascriptions could occur and in order to formulate the grounds of such self-ascriptions, it would be necessary to employ predicates, P*-predicates, that could not be expressed in our imaginary language. A speaker of this language would have to learn to self-

> ascribe such M-predicates as ‘is facing a table’ under just those circumstances in which he would be entitled to self-ascribe certain P*-predicates, e.g., ‘sees a table in the center of one’s field of vision’, if only he had these P*-predicates in his vocabulary. And if he can be taught to self-ascribe an M-predicate in this way, thus showing that he can discriminate between cases in which a certain P*-predicate applies to him and cases in which it does not, there would seem to be no reason in principle why he could not be taught to self-ascribe the P*-predicate itself. (Shoemaker 1968, 566)

For this reason, Shoemaker thinks that anyone capable of self-ascribing predicates of any kind must be able, in principle, to self-ascribe some P*-predicates. In this sense, use of ‘I’ as subject is more fundamental than the use of ‘I’ as object. If one does not have the ability to self-ascribe P*-predicates, one cannot have the ability to self-ascribe predicates of any other kind.

Furthermore, he argues that the self-ascription of M-predicates is the clearest case of use of ‘I’ as object. Suppose I self-ascribe the predicate ‘is facing a table’. This means that my body is facing a table. And if we ask what it means to call something ‘my body’, we would say that it is “the body from whose eyes *I* see, …whose mouth emits sounds when *I* speak…the body that has something pressing against it when *I* feel pressure, and so on” (Shoemaker 1968, 567 my emphasis). Further, according to Shoemaker the use of ‘I’ that occurs in this explanation of the meaning of the phrase ‘my body’ is the use of ‘I’ as subject (since they are IEM). And ‘my body’ can be used, in turn, to explain the use of the self-ascription of M-predicates (Shoemaker 1968, 567). Therefore, M-predicates

belong to me in virtue of "being connected in a certain way with P* predicates that are mine" (Shoemaker 1968, 567).

Shoemaker's claim regarding the fundamentality of the use of 'I' as subject shows that in order to be able to self-ascribe bodily features, one must already possess some form of self-awareness. Accordingly, the use of 'I' as subject is more fundamental than the use of 'I' as object: for without the former, the latter would be impossible. In this sense, the ability to self-ascribe M-predicates (which are predicates that designate things as physical objects, among other physical objects in the world) depends on the ability to self-ascribe P* predicates. And so the basis on which we ascribe the former predicates requires the latter kind of ability to already be in place (even if not explicitly, i.e. even if a speaker does not yet possess that kind of *linguistic* ability).

According to both Longuenesse's and Shoemaker's suggestions self-awareness is in some sense more fundamental than bodily awareness. It is more fundamental in the sense that bodily awareness depends on self-awareness. If the latter dependence claim is true (it is sufficient that one of the interpretations is true: Longuenesse's or Shoemaker's), then the dependence thesis that Cassam puts forth is false. For dependence is not a symmetrical relation: if bodily awareness depends on self-awareness, self-awareness does not depend on bodily awareness.

The token identity claim

According to the token identity claim the state token of bodily awareness is (at least) sometimes identical to the state token of self-awareness. The thesis does not entail

that bodily awareness *is* self-awareness, nor does it entail that the former is a form of the latter. If we think of bodily awareness and self-awareness as types, the claim is not an affirmation of type identity, or a determinate/determinable relation. The claim is solely concerned with mental state tokens. So while one type of awareness may not be a form of the other, tokens of the two types of mental states can be identical.

Consider the following analogy: A mental episode of being appeared to turquoisly is a mental episode – a mental state - of being appeared to bluely (or as colored), since turquois is a kind of blue (or more generally a kind of color), but these colors are not identical. One could argue, however, that this example involves a determinable-determinate relation. As such, it cannot serve as an appropriate analogy, for turquoise can be construed as a kind of blue, while bodily-awareness is not a kind of self-awareness.

However, consider the following example:

> *Exercise*: You decided to get back in shape and are jogging for the first time in years. This is quite an effort, and you are aware of your progression through space, your breath, your heartbeat, the exertion of your muscles and the way your feet hit the ground.

We can argue that a mental episode (or state) of being bodily aware is identical to a mental episode (or state) of being self-aware, even if the property of being bodily aware is not identical to the property of being self-aware. Introspectively, we cannot (phenomenally) distinguish the episode of being bodily aware from being self-aware.

This kind of awareness, based on proprioception and interoception, is an example of bodily awareness. Presumably, however, you are also, in being thus bodily aware, self-aware. You are *not* bodily aware and in addition aware that you are doing the running, moving through space, exerting your muscles and moving your limbs. Rather, you are self-aware in being bodily aware. The kind of self-awareness at stake here (whose token is sometimes identical to a token of bodily awareness) is not self-awareness in the transcendental (Kantian) sense described above.[188] Instead, it is self-awareness in the empirical sense, i.e. awareness of something (i.e. oneself) as something whose experiential route through the world "determines spatiotemporal enabling conditions of perception" (2006, 299). In *Exercise*, I seem to be self-aware as something that has a particular route through the world, and that is aware of the going through the route as particularly exerting. It is not an only instance only of, e.g., a certain body moving in a particular (exerting) way, but of myself moving in such a way and hitting the floor in such-and-such a way. Of course, this is not a knockdown argument. However, the considerations from introspection speak in favor of the thesis.

The general plausibility of the thesis that mental state token, or instance, of bodily awareness, BA, a can be identical to mental state token, or instance, of self-awareness, SA relies on some general considerations regarding types and tokens (I will henceforth use the word "instance" to refer to particularized properties, or tropes, following Rowlands's (1989) terminology). If we think that mental tokens can be identical, despite their types not being identical, or that properties can share an instance, then we can

[188] For that kind of awareness can never be empirical or experiential. Recall that the subject of that self-awareness is characterized as the agent of the act of combining and comparing representations, whatever that agent may be (Longuenesse 2006), or it is sometimes thought to be pure activity (Rosefeld 2006) or a logical object (Horstmann 1993).

accept the state token identity thesis. Often, talk of type and token identity can be found in discussions about the identification of mental with physical properties. But the point here is not to identify a mental token with a physical token, but two mental tokens. We can make sense of this if we think of the following analogy: suppose you are a natural class trope nominalist, and would therefore reconstruct properties as some kind of equivalence classes of tropes.[189] There will be properties that are different classes but share some of the tropes they have. So the claim here is not the trivial one that one and the same thing can have more than one property, but that one property instance or trope can belong to different classes. Similarly, the mental state token belongs to or instantiates two different mental state types.

We can further motivate this account by appealing to some more general considerations regarding event identity and the properties of which events are instances. Suppose I instantiate the property of being bodily aware, BA, at t and that I also instantiate the property of being self-aware, SA, at t. Under what conditions is the instance of BA at t identical to the instance of SA at t? According to Kim, the events can only be identical if BA=SA (Kim 1976, 311). So if we accept this necessary criterion for event identity, the instance of bodily awareness can never be identical to the instance of self-awareness, for we have seen that BA≠SA (e.g. because SA is and BA is not IEM).

By contrast, according to Rowlands distinct properties can have a common instance (Rowlands 1989, 195). When properties stand in a relation of entailment or necessary determination, they can share a common instance. For example, being red entails being colored, but not vice versa. But although the property of being red and the property of being colored are distinct, a red object does not contain two property

[189] See Ehring (2004; 2011).

instances: the property instance of being red and the property instance of being colored. While the properties are distinct, their instances are identical (Rowlands 1989, 195). A similar account also applies to events. The property of changing color is not identical to the property of changing from red to blue, but an object's changing from red to blue is identical with the object's changing color (Rowlands 1989, 195).

Since Rowlands thinks that the relation between the properties does not have to be identity for their instances to be identical, the condition for event identity he provides is the following: Event [x, P, t] = Event [y, Q, t'] just in case x=y, t=t' and P=Q or P=>Q. Where 'x' denotes the object, 'P' denotes the property and 't' denotes the time, and '=>' "denotes the [synchronic] relation of necessary determination" (Rowlands 1989, 195).[190] Does this account apply to the issue of the relation between bodily awareness and self-awareness? More specifically, does it support the token identity thesis? Since bodily awareness and self-awareness are distinct properties, the relation between them must be that of necessary determination, if they should satisfy Rowlands' account of event identity. However, since being bodily aware is not a form of being self-aware (unlike being red and being colored), one might argue that this account is not applicable to the issue of bodily awareness and self-awareness, and thus fails to support the token identity thesis. Here we can perhaps appeal to the dependence thesis, according to which bodily awareness depends on self-awareness. Is dependence a kind of necessary determination

[190] This is not meant to be a fully general formulation because it only applies to events including single objects and monadic properties. The most obvious generalization to relations will be problematic: Event [x1…xn, R, t] = Event [y1…yn, R', t'] iff the ordered tuple <x1…xn> = the ordered tuple <y1…yn>, R=R', and t=t'. We can easily think of counterexamples: Jim kicking the ball is plausibly identical to the ball getting kicked by Jim. But <Jim, ball> =/= <ball, Jim>, and the relation of kicking =/= the relation of being kicked. So one would need to introduce some machinery to take care of converse relations and their relata (or accept an ultra-fine grained conception of events that systematically multiplies them, e.g. accepts a separate "passive" event for each "active" event). However, this problem is arguably tangential to my goals, since I am only concerned with events that include single objects and monadic properties.

(i.e. a relation of non-causal determination)? Clearly, the dependence thesis entails the following conditional: if I am bodily aware, then I am self-aware. If it is true, as Rowlands claims, that the relation of entailment between properties "makes possible their sharing of a common instance" (1989, 195), then it seems that the dependence thesis is sufficient to establish that the property of self-awareness (understood as empirical self-awareness) and of bodily awareness can share a common instance.

Suppose, however, that the dependence thesis was false. Given the account of event identity given above, would the token identity also be false? That is, is the truth of dependence thesis necessary for the truth of the token identity thesis? In *Exercise* it seems that phenomenological considerations should make us favor the token identity claim: the property instance of being self-aware is identical to the property instance of being bodily aware. In both cases the plausibility of the claim draws on phenomenological considerations. So even if the dependence claim discussed in the previous section ((2)*) is false, the token identity thesis is still very plausible.

So it seems that there are reasons to think that bodily awareness is not a form of self-awareness, and that a certain form of a dependence claim may be defended. Therefore, we have two reasons to accept the token identity statement. First, it seems that bodily awareness and self-awareness can be phenomenologically indistinguishable to the subject. Second, since there is a relation of dependence between the property of being bodily aware and the property of being self-aware, a token of bodily awareness can be identical to a token of self-awareness.

The token identity claim might explain why we are drawn to the claim that bodily awareness is a form of self-awareness, or even to the stronger claim that they are

identical. Since the properties can share an instance, we think that that the properties themselves are identical, or alternatively that one is a form of the other. We may think, for instance, that the latter claim is true because we think that if the tokens of the properties are identical, then the properties themselves must stand in some determinable-determinate relation. However, as we have seen, we can explain why the instances of BA and SA can be identical by appealing to the dependence relation, in addition to phenomenological considerations, rather than to the "form of…" thesis, according to which the relation between the properties is a determinate-determinable relation.[191]

In the next section I will build on the results of this section to construct a new puzzle for constitution views. According to the new, bodily awareness puzzle, while the new bodily view can account for the token identity thesis, some constitution views do not, and owe us an explanation that accommodates the token identity thesis.

2. The Bodily Awareness Puzzle

According to constitution views like Baker's we are not identical to our bodies. Since for Baker the human animal (or the human organism) just is the body[192], I will also assume they refer to the same object for the purpose of the puzzle. Instead of identity, the relation between our bodies and us is constitution: the human animal (the body) constitutes the person. The constitution relation is some kind of a unity relation. But the human animal and the person seem to share many of their properties. For example, they

[191] Additionally, the token identity thesis is true even if Cassam is right that bodily awareness is sui generis (2011). For the argument for the token identity thesis does not rely on the claim that bodily self-awareness falls under a different kind of awareness. It can be unique, and fall under a category of its own, yet still share an instance with self-awareness. Similarly, one might argue that the dependence claim is untouched by his claim that bodily awareness is sui generis.

[192] "**Human animal** is your body's primary kind." (Baker, the metaphysics of everyday life, 38)

have the same height and weight, and they seem to have the same thoughts. To account for the seeming multiplication of properties, Baker develops an account that explain why, in fact, the two distinct objects, the human animal and the person, do not have two instances of the same property.

According to Baker the human animal has some of its properties derivatively, in virtue of constituting the person that has these properties non-derivatively, and the person also has some of her properties derivatively, in virtue of being constituted by the human animal that has those properties non-derivatively. For example, a person weighs 140 pounds in virtue of being constituted by a human animal with that weight. And the human animal has first-person thought derivatively, in virtue of constituting the person.

According to the bodily awareness puzzle I will construct the constitution view faces a special kind of problem that has to do not with the multiplication of thinkers (see the previous chapter for the thinking animal problem to see such a puzzle), but with an inconsistency with respect to the status of a single thought (or mental event). Recall that according to the token state identity thesis the token of bodily awareness can be identical to the token of self-awareness. However, bodily awareness is arguably something that the human animal has non-derivatively, for non-human animals also possess that type of awareness. Therefore, the person has bodily-awareness derivatively. The person arguably has self-awareness non-derivatively, not in virtue of being constituted by the human animal. But if the bodily awareness token is identical to the self-awareness token, then the same object has one token state or episode both derivatively and non-derivatively. Arguably, that is impossible because the same state cannot be both derivative and non-

derivative relative to one single thing. So constitution views like Baker's owe us a solution to the problem[193]. We can put the puzzle in the following terms:

P1) The token identity thesis is true: Sometimes, the token state BA of bodily awareness is identical to the token state SA of self-awareness: sometimes, BA=SA.

P2) In a particular (human) person P, BA=SA.

P3) If a person has a property in virtue of something that constitutes her, she has it derivatively.

P4) A person has bodily awareness in virtue of the human animal that constitutes her/that person.

P5) Therefore, P has BA derivatively.

P6) P has SA non-derivatively.

P7) Therefore, P has BA derivatively and SA nonderivatively.

P8) If P had BA derivatively and SA nonderivatively, then BA ≠ SA.

C) BA=SA (according to P1), but BA ≠ SA (according to P8). Contradiction.

I defended (P1) above. Briefly, a token state like bodily awareness through proprioception can be identical to a token state of self-awareness. Baker might argue that bodily awareness is particular to persons, so the puzzle cannot get off the ground. But

[193] Baker would presumably not want to allow bodily awareness to be had nonderivatively by *both* the human animal and the person, since that would multiply the properties that are present and she introduces the derivative-nonderivative distinction to explain how a *single* property is had by both the human animal and the person. Furthermore, even if she admitted that the person has bodily awareness non-derivatively, we could push the puzzle to the level of the human animal: the human animal is bodily aware non-derivatively, but self-aware derivatively. And so the human animal would have a single property token in two incompatible ways. I thank Simon Evnine for pointing my attention to this possible response on Baker's behalf.

note that bodily awareness is not particular to persons, even if self-awareness is (perhaps the kind that requires being aware of oneself as oneself). Other animals are also aware of their bodies, of the position of their limbs, of their orientation in space etc. If that is the case, then human animals are also bodily aware, regardless of whether they constitute persons. For if chimpanzees, dogs, and other animals can be bodily aware, surely human animals can.

Presumably, however, persons can also be bodily aware. For instance, Baker thinks that we are embodied creatures. So how do we explain the properties that our bodies instantiate? On her view, although we are not identical to our bodies (to the human animal or whatever the physical body is), we inherit some of the properties of our bodies. For instance, if a human animal weighs 130 pounds, then so does the person. And whereas the animal has this weight non-derivatively, the person has it derivatively, in virtue of being constituted by the animal (P3). But since human animals can be bodily aware, then persons must be aware derivatively, in virtue of the human animals constituting them (P4; P5). Furthermore, a person, according to Baker, has self-awareness non-derivatively (P6).

Recall that we assumed that SA=BA. In other words, we assumed that the mental token of being self-aware was identical to the token of being bodily aware (P1). So person P has one and the same mental token derivatively and non-derivatively. She has it derivatively because she is bodily aware in virtue of being constituted by a human animal; she has it non-derivatively because she is self-aware in virtue of being a person.

But then, one person, P, has one and the same token, which is an instance of bodily awareness and self-awareness, in two incompatible ways.[194]

The puzzle can also work in the other direction: if you think that human animals can only be bodily aware in virtue of constituting persons who are self-aware, then they are non-derivatively bodily aware and derivatively self-aware. But since B and S are identical, it means that possess the same state token both derivatively and non-derivatively.

Objection 1: The setup of the puzzle is incompatible with the dependence thesis.

According to the dependence thesis, bodily awareness depends, in some sense, on self-awareness. But if that's the case, then how can we say that a human animal is self-aware derivatively? If it is not only self-aware derivatively, then the puzzle cannot get off the ground. There are a few ways to respond to the worry.

To begin with, the puzzle only assumes as much as Baker assumes. And according to Baker, self-awareness (at least of the robust type – where one can think of oneself as oneself, of be aware of oneself as oneself) is particular to persons in the sense of being possessed by them non-derivatively (since human animas can have it too, derivatively). Furthermore, suppose that one insists that the puzzle is incompatible with the dependence thesis and that the problem with *this* incompatibility is that the only way out for Baker is to admit that human animals have self-awareness non-derivatively (if she wants to accept the dependence thesis, that is). Then all the worse for her view; it seems,

[194] While one may argue that perhaps the same property instance can be had both derivatively and non-derivatively by the same object, all the argument requires is the restricted claim that tokens that are instances of self-awareness/bodily awareness cannot be had in such a way.

then, that she would face the old thinking animal problem. And if she does not want to face that problem by arguing for the derivative/non-derivative distinction, she faces the problem of having one object having a single particularized property (or instance), or being in a single mental state token, in incompatible ways.

Objection 2: Animalism does not face the puzzle, but the new bodily view does.

It's clear that animalists avoid the bodily awareness puzzle. For on their view, to begin with, there is only one object that can be bodily aware and self-aware. Since the animalist does not think that there is an additional object, the person, coincident with the animal, she does not need to say that the property is had in a particular way, i.e. derivatively or non-derivatively. For this reason, if an instance of bodily awareness is identical to an instance of self-awareness, then the object – the human animal – simply *has* it simpliciter.

However, on the new bodily view, I am identical to a body that has the human animal as a part, among other parts. Is there a problem of having a property instance, or a single mental state token, in two incompatible ways on my view? One could argue that the answer is affirmative: the human animal is bodily aware and it is self-aware. And sometimes the states of being self-aware and being bodily aware are identical. But on the new bodily view the human animal is not identical to the body. And if the body is also self-aware and bodily aware, then both objects (the human animal and the body) have the same property instance in incompatible ways, or they are in an identical mental state (token) in two incompatible ways.

This objection misconstrues the new bodily view. On the bodily view the human animal is a proper part of the body. A part of the body (e.g. the brain, or the human animal) is the vehicle of realization of a certain property, namely the property of being bodily aware/self-aware. The brain is the vehicle of realization of that property in the following way: it has a certain property and that property realizes the property of being bodily/self-aware. And in this sense, the property of being bodily aware is realized in the brain, by a property the brain has. It doesn't follow the brain has this property; the property is realized "in" the brain but only had by the body.[195] To see why this is plausible, consider the following example: I have the relational property of having a head between my ears. The property of having a head between one's ears can be constructed out of a three-place relation between the left ear, the head and the right ear, and relational property constructed out of that. You could argue the realization of this property happens in my head, my left ear and my right ear together. That is where the physical action happens that is needed for this property to be realized. But none of these objects has this property: neither of the ears has ears, the head doesn't have the property of having a head between the ears, etc. Rather: I have this property. So although the vehicle of realization is my head and ears and not my feet, it does not entail that I am not the proper thing to which the property should be ascribed.

[195] This line of thought draws on a quick distinction that Burke (2003) draws between having consciousness and there being consciousness in something. I am conscious, my head is not, but there is consciousness in my head.

Conclusion

In the previous four chapters I defended the following claims:

1. The persistence of the brainstem provides neither necessary nor sufficient conditions for the persistence of human animals (chapter 1).

In this chapter I attack the following argument for the latter claim:

(1) Life L1 at t_1 is identical to life L2 at t_2 ≡ Organism O1 animated by L1 at t_1 is identical to Organism O2 animated by L2 at t_2. (*Life)*

(2) There is a functioning brainstem B1 that controls the life of the human animal.

(3) If an x controls the life of an organism, the persistence of that x is necessary and sufficient for the persistence of that life. (*Conditional*)

(4) Therefore, brainstem B1 that controls life L1 at t_1 is identical to brainstem B2 that controls life L2 at t_2 ≡ L1 (controlled by a brainstem) at t_1 is identical to L2 (controlled by a brainstem) at t_2. (*Control*)

(5) Therefore (by transitivity from (*Life*) and (*Control*)), brainstem B1 that controls L1 at t_1 is identical to brainstem B2 that controls the life L2 at t_2 ≡ Organism O1 at t_1 (animated by L1, controlled by B1) is identical to Organism O2 at t_2 (animated by L2, controlled by B2). (*Brainstem Condition*)

I argued against (Brainstem Condition) by examining two thought experiments. The first thought experiment examines the relation between the controller of a life (the brainstem) and the idea that we can individuate a life through its controller. In this thought experiment a scientist transplants a second brainstem into a human while keeping its original brainstem functioning. At time t_1 there is only one brainstem, which controls the vital functions of the animal. The second, transplanted brainstem comes to replace the first brainstem by gradually taking over the human's vital functions. In this process, there is a time t_2, in which the vital functions are overdetermined by two brainstems. At t_3 the original brainstem no longer functions (and cannot be reanimated) and the vital functions that were originally controlled by it are now controlled by the transplanted brainstem.

The second thought experiment examines a case in a scientist takes the brainstem of a fully functioning human animal, Betty, and transplants it into a brainstemless body of an animal of a different species, e.g. a chimpanzee (Chimp-minus), whose brainstem has been destroyed. The operation succeeds and Betty's brainstem now controls the vital functions of Chimp-minus. How one understands what happens to Betty depends on how one understands the term 'life'. If life is understood as a process that is restricted by kind membership, then she does not survive. If life is understood as a process not restricted by kind membership, then Betty survives as Chimp-minus plus her integrated original brainstem.

Apart from being counterintuitive, these results pose the following problem for this kind of an account of persistence. According to the first disambiguation of the term life, it seems that we cannot properly account for the persistence of a single animal over time by tracking its life. For according to this reading, Betty survives as Chimp-minus,

which seems implausible. So it seems that (Life) is undermined: the continuation of a life (guided by a particular brainstem) is not a good way to track the persistence of an organism. According to the second disambiguation of the term 'life', a life is not only a jealous, self-directing, self-organizing non-intermittent biological event with a metabolism and a natural boundary, which is spatiotemporally continuous, but also has an owner that falls under a certain substance sortal. If we track the persistence of this life over time, therefore, it must belong to an owner that falls under the same substance sortal over time. This would rule out the possibility that Betty can survive as Chimp-minus. And it seems to make (Life) more plausible as a condition of organism persistence. However, this disambiguation undermines (Control). For it is highly implausible that the identity of a brainstem over time is necessary and sufficient for the identity of a life over time, understood as the life owner by something that falls under a certain substance sortal.

It seems, therefore, that the argument above ((1)-(5)) is unsound. The first disambiguation favors (Control), since it only connects the brainstem to a process, rather than to a certain animal kind. But this argument also renders (Life) less plausible. The second disambiguation makes (Life) seem more plausible as a way to account for the persistence of a certain organism (since it places a restriction on the kind of thing it can be), but it also seems to undermine (Control). So no disambiguation of the term 'life' renders both (Control) and (Life) plausible.

2. If we cannot specify the persistence conditions of human animals in terms of their brainstems, then we are unlikely to do so in terms of any of their parts (chapter 1).

This claim is plausible if we think that the best candidate for the controller of the life of a human animal is one of its parts (namely the brainstem). In response to the arguments presented in this chapter, Olson has agreed that we cannot individuate and track a life of a human animal over time in terms of one of its parts (see Olson forthcoming).

3. Somaticism, the view that organisms can persist through death (namely as dead organisms) is true (chapter 2).

According to the view I defend – somaticism – there are dead organisms, and those organisms are identical to the once living organisms they result from. I argue for this claim by showing that dead organisms instantiate the property of being an organism. I do so by first specifying what kind of a natural property being an organism is (namely, a scientific property, not a fundamental property) and by showing that this property figures in biological laws, and that it is plausible that biology has to quantify over biological organisms, understood as either dead or alive.

4. The new bodily view, according to which we are identical to our bodies, solves or avoids theoretical puzzles better than constitution views like Baker's, and it respects more of our intuitions about ourselves than does animalism (chapter 3).

According to the new bodily view, we are identical to our bodies. Our bodies, in turn are composed of the human animal and additional properties (which I call the P-cluster and the M-cluster). The view allows us to keep some of our deepest intuitions about ourselves. For example: when we die, we cease to exist (since the P-cluster and M-cluster cease to exist), but a part of us is left behind, namely the corpse. The corpse was a part of us because the corpse is identical to the human animal it resulted from, and that human animal was a part of the body. Moreover, while artificial limbs and organs may not be proper parts of the human animal, they are proper parts of the body (and therefore proper parts of us). In addition, I showed that the view collapses the thinking animal puzzle into the thinking parts puzzle. Finally, I showed that solving the thinking parts puzzle provides additional support for the bodily view.

5. Sometimes, the state of being bodily aware and the state of being self-aware are identical. This claim might help explain why we think that bodily awareness is a form of self-awareness (chapter 4).

I argued for this claim by drawing on phenomenological considerations. Importantly, the claim does not entail anything about the relation between bodily awareness and self-awareness (as types of awareness). But if sometimes bodily awareness and self-awareness are the same state, this can help us understand why subsuming one kind of awareness under the other seems superficially plausible (in some way, i.e. as a dependence claim or as a "form of…" claim), despite being misguided.

6. If the state of being bodily aware and the state of being self-aware are sometimes identical, then we can construct a new puzzle for some views in personal identity: the bodily-awareness puzzle. According to this puzzle, the latter claim entails that the person is in a single state in two ways that are seemingly incompatible (chapter 4).

If bodily- and self-awareness can be the same state, then psychological views according to which we are not identical to a physical thing face what I call the bodily awareness puzzle. According to this puzzle one object, namely the person, is in the same state in two seemingly incompatible ways: derivatively and non-derivatively. The puzzle is not faced by views on which we identical to a physical object (e.g. a human animals or bodies).

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