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Animalism and the Varieties of Conjoined Twinning

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11.1. Animalism and the Challenge of Dicephalus

There are various theories of what kind of entity we essentially are. Animalism is the view that each of us—each individual of the kind of which we are necessarily and most fundamentally members—is numerically identical to a human organism.[1] Animalism is opposed by a range of theories that insist that the conditions of our identity are not biological but psychological—or, as one of us has argued previously, that they involve certain forms of physical, functional, and organizational continuity of the brain; continuities that, though physical, are nevertheless necessary and sufficient for a minimal form of psychological continuity (McMahan 2002: ch. 1). Some philosophers were earlier persuaded to embrace one or another of these psychological accounts of our identity by thought experiments involving whole-body transplantation, in which one person's brain is transplanted into the decerebrate head of another body, perhaps remaining conscious throughout the process. To many people, it seems obvious that the person whose brain is thus moved from one organism to another would continue to exist in the organism that received his brain, while the organism he animated prior to the transplant would remain behind, either as a corpse or as a living organism sustained by external life support. If, however, the person can survive separation from his animal organism, he cannot have been identical to it.

Some, however, object to the use of science-fiction thought experiments in arguments about personal identity. In earlier work, therefore, one of us sought to reinforce the brain transplantation argument by appealing to an actual case: dicephalus (McMahan 2002: 35–9; McMahan 1998). Dicephalus occurs when a human zygote divides incompletely, resulting in twins fused below the neck. In a case featured in *Life* magazine, Abigail and Brittany Hensel appear as two heads emerging from a single torso; yet they

[1] This chapter is a revised version of a paper with the same title that appeared in *Theoretical Medicine and Bioethics* 31 (2010): 285–301.

are clearly separate and distinct persons (Miller 1996). Each has her own private mental life and her own character, each feels sensations only on her own side of the body, and each has exclusive control over limbs on her side. They seem, however, to share a single organism. Although they have two hearts, two esophagi, and two stomachs, they share three lungs, a single liver, a single small intestine, a single large intestine, and single urinary, circulatory, immunological, and reproductive systems (so that any child they might conceive would have three persons as biological parents: a father and two mothers). Their organs are contained in a single rib cage and function together in a harmonious, coordinated manner. The limited duplication of organs would appear to be contingent. Recorded cases of dicephalus show varying degrees of duplication and it is physically possible that there could be an even purer case than that of the Hensel twins, in which there would be virtually no duplication of organs below the neck (for example, only one heart and two esophagi leading to a single stomach). While it is clear that there are two distinct organisms in cases of superficially conjoined twins, in which there is only very limited sharing of nonvital organs but extensive duplication of others, it is implausible to suppose that there are two organisms in cases such as that of the Hensel twins, in which there is only very limited duplication of organs and all the organs function together as a unit.

Before continuing, we should explain our terminology. What is at issue between animalists and us is precisely what kind of entity we essentially and most fundamentally are. This makes it difficult to refer to entities of our essential and fundamental kind in a general way without begging the question. Although we reject the view that we are essentially persons in the familiar Lockean sense (because, for example, we think that it is obvious that you existed prior to becoming self-conscious), we will nevertheless, for convenience, refer to all individuals that are members of the kind to which we essentially and most fundamentally belong as "persons." For the purposes of this essay, all we mean by "person" is "an individual of our essential kind," whatever that kind may be (human animal, embodied mind, Cartesian ego, Lockean person, etc.).

Since animalists claim that we are identical to human organisms, they are committed to the claim that wherever there is one of us, there is precisely one human organism identical to this individual, and wherever there is a human organism, there is one and only one of us identical with it. Dicephalus, therefore, appears to be a counterexample to their theory. This is because each twin is a person and is related to the organism in the same way as the other; therefore, there is no basis for the claim that one is the organism and the other not (though even the claim that one of them is the organism would imply that at least one person is not an organism). Given the transitivity of the identity relation, both persons cannot be identical to the organism without being identical to each other. Since they are not identical to each other, it seems that neither is identical to the organism. Thus, there are persons that are not essentially organisms, and animalism is false. Moreover, since each dicephalic twin is the same kind of entity that we essentially are, none of us is essentially an organism.

The same is true of all conscious nonhuman animals: they are not identical to their organisms either. Transplanting the brain of one animal into a different animal organism would not deprive the original conscious being of a vital organ but would, instead, move it from one organism to another. There are, moreover, cases of dicephalus in nonhuman animals in which, while there are clearly two separate sentient beings, it is reasonable to suppose that there is only one organism between them. If each of these sentient beings is essentially the same kind of entity as every other sentient being, then no sentient being is essentially an organism. We might express this paradoxically by saying that animals, like persons, are also not essentially animals.

11.2. The Too-Many-Subjects Problem

Few animalists have responded to the challenge of dicephalus. Many have concentrated instead on pressing a general objection to theories that deny the central tenet of animalism: that we are identical to animal organisms. We will refer to this objection as the "too-many-subjects problem." It is that if we are not organisms, there must be two entities where you are now: you and your organism. If you are spatially and materially coincident with your organism—that is, located in the same region of space and constituted by the exact same matter—then, since you are conscious and your mental properties supervene on certain of your physical properties, your organism must be conscious as well since it has all of your physical properties. But that is one subject of experience too many. It is absurd to suppose that there are really two subjects of each individual thought or experience occurring in your head (Olson 2007: 29–30).

Some philosophers—coincidentalists—are untroubled by the prospect of coincident entities. They posit them in order to solve certain metaphysical puzzles, such as how a lump of clay sculpted into the shape of Socrates could continue to exist even after being squashed, while the statue could not, even though the statue and the lump are composed of the same matter. They maintain that what makes this possible is the fact that the statue and the lump have different modal properties, even though they coincide spatially and materially before the squashing. But whatever virtues and vices coincidentalism might have in general, special problems seem to arise when it is applied to us and our organisms. As Eric Olson has pointed out, it gives rise to the epistemic problem that one would lack justification for believing that one was identical to the entity with psychological identity conditions rather than the organism coincident with it. If, for example, you were to believe, "I have psychological identity conditions," the organism coincident with you would have this same belief. The organism, however, would be mistaken, for no form of psychological continuity is either necessary or sufficient for its continued existence. And since you and your organism would share the same first-person perspective, you would not be able to tell whether you were the person with the true belief or the organism with the false one.

Olson has noted that animalism might be thought to have its own too-many-subjects problem. If you are an animal organism, it seems that you could continue to

exist in the form of a corpse after you die. But many animalists, Olson included, have been reluctant to accept that we usually survive death in this way. They hold that organisms have among their identity conditions a kind of functional unity that is lost at death. So Olson and others have wanted to claim that an animal ceases to exist when it dies. But if that is true, it may seem that what survives the death of the organism is a mere body that has been there all along, coincident with the organism. If so, there must be two coincident entities where you are now: the organism (which is what you are) and your body. And given that the organism is conscious, it seems that the mere body must be as well, since both entities are composed of the same matter.

Olson initially responded to this problem by denying that organisms coexist with bodies (Olson 2004). He suggested instead that there is no body until an organism dies and ceases to exist. When that happens, the matter that composed the organism comes to compose a new and different substance: a corpse or lifeless body that supplants it in the region of space it occupied. Olson finds this proposal attractive because he thinks there is no analogous solution available to his opponents. Those who wish to defend a psychological account of our identity cannot plausibly claim that a human organism exists only before and after one of us exists. So the defender of the psychological approach must give a different response to the too-many-subjects problem.

More recently, Olson has become inclined to accept an eliminativist view of bodies. On this view, there simply are no mere bodies and hence no corpses. When an animal ceases to exist, if its bodily structure remains mostly intact, then although the particles that composed it prior to its death remain in the shape of an organism, they do not compose an organism or a body or corpse. We believe defenders of the psychological approach could with equal plausibility (or implausibility) take an analogous eliminativist stance toward organisms. Suppose that a person's cerebral hemispheres irreversibly lose the capacity for consciousness but that what we call the brain stem and the rest of the body remain functional with minimal external life support. It is open to the defender of the psychological account to claim that the matter that previously composed a person now composes nothing at all. There is no organism but only a set of particles arranged in an organismlike way. If particles arranged in a bodylike way can fail to compose a body, it seems that particles arranged in an organismlike way can fail to compose an organism.

Olson argues for the existence of organisms by appealing to the ontological significance of the functional unity among the parts that compose them:

> I claim that if there are any composite objects, there are organisms. The particles that make up a live cat are unified if any particles are . . . If you don't believe there are organisms, you might as well say there are no composite objects at all. So I feel confident that there are animals if there are any composite objects. I'm a lot less confident about the existence of any of the rival candidates for being me. (Olson 2008: 41)

But a defender of the psychological account might respond that if there is any sort of activity that can be fully explained only by positing a composite object that engages in

that activity, consciousness is the most plausible candidate. The claim that there could not be conscious experience without an accompanying subject of that experience is plausible, though controversial. It is harder to believe that we must posit an organism in order to explain the complex biological processes that Olson finds so ontologically impressive. The defender of the psychological account can claim that the complexity of the unity among particles that together generate conscious experience is substantially greater and more impressive even than that among particles whose interactions constitute the life processes of what we take to be organisms. If there are any composite objects, this theorist might say, there are conscious entities; if you do not believe there are conscious entities, you might as well say there are no composite objects at all. So perhaps we should be more confident in the existence of conscious entities (which persist by virtue of psychological continuity) than we are in the existence of organisms. We do not, however, wish to commit ourselves to such a radical eliminativist position. Thus, we are still faced with the too-many-subjects problem.

11.3. You Are a Part of an Organism

Defenders of psychological accounts have offered various responses to the too many-subjects objection as it applies to their view. They have argued, among other things, that psychological properties can be predicated only of psychological continuers and not of organisms, that organisms are incapable of self-reference, and that a person and her organism can be nonidentical yet not numerically distinct.[2] Our own suggestion is to deny that we are spatially coincident with organisms. Each of us is instead a *part* of an organism. We are reluctant to take a position on the issue of the relation between the mind and the brain, but for simplicity of exposition only, we will assume that an identity theory is true. *On that assumption*, there are at least two related but different versions of our view one might develop. One is that a person is identical to those functional areas of her brain that are necessary and jointly sufficient for her capacity for consciousness. The other is that a person is identical to the set of particles whose physical properties constitute the supervenience base for her phenomenal properties (that is, the properties she exemplifies when she is in a state in which there is something it is *like* for her to be in that state). This view assumes that the person possesses a phenomenal core that is genuinely intrinsic, supervening only upon parts of her brain (together, perhaps, with certain parts of her central nervous system).[3] For our present purposes, we will assume the first version.[4] On this view, we are *nonderivative* subjects of consciousness.

[2] The first view is defended in Shoemaker (1999) and Shoemaker (2008), the second in Noonan (1998), and the third in Baker (2007).

[3] Olson (2007: 87–98) raises several problems for a view similar to this one. In the same chapter, he also discusses several arguments against what he calls the brain view, which he defines as any view on which we are "something like brains," where this category includes brains, parts of brains, and entire central nervous systems. We take our view to be a version of the brain view—again, on the assumption, on which we take no stand, that an identity theory provides the correct account of the relation between mind and brain.

[4] One of us (Campbell) finds the second view more promising. See Campbell (forthcoming).

Our organisms, by contrast, are conscious only in the derivative sense that they have a part that is conscious, in the same way that a car makes a honking sound only in virtue of having a part—the horn—that makes a honking sound.

This view does not, however, clearly escape the too-many-subjects problem. It would be a mistake to identify the person with a part of the organism whose persistence does not require the capacity for generating consciousness. Such identification would entail that we could survive the loss of this capacity. If, for example, we were identical to our brains, we could survive as dead brains—that is, brains that completely lack the capacity for consciousness. But in our view the capacity for consciousness is one of our *essential* properties. This suggests the need to distinguish between "the functional brain," by which we mean the part of the brain whose persistence requires that it function in a way that is necessary and sufficient for the capacity for generating consciousness, and "the mere brain," by which we mean a part that *could* function in a way that is necessary and sufficient for the capacity for consciousness, but whose persistence does not *require* functioning in this way. Assuming that an identity theory of the relation between mind and brain is correct, we are functional brains. When the functional brain ceases to be functional—that is, when it loses its capacity for generating consciousness—it, and therefore we, cease to exist. But the mere brain could remain as a dead organ, or an organ with extensive areas of necrosis. But this suggests that there might be two spatially coincident entities in each person's head now: the mere brain and the functional brain. The mere brain and the functional brain have different identity conditions and our identity conditions are those of the functional brain. Yet, the mere brain and the functional brain could be composed of exactly the same matter at the same time. It seems that if the functional brain is conscious now then the mere brain, if it is coincident with the functional brain, must be as well (Hershenov 2005).

Hence, again, there are too many subjects of experience. Not surprisingly, the epistemic problem also arises for our view. One could never know if one were the essentially functional brain or the mere brain and only contingently functional. Moreover, it is implausible to suppose that only the functional brain is a nonderivative subject of consciousness, while the mere brain is conscious only derivatively. This response seems to work only for noncoincident entities.

The response we favor to this objection parallels Olson's initial response in defense of animalism. Just as Olson claims that organisms and bodies do not coexist, but that the matter that composes an organism comes to compose a body when the organism dies, so we suggest that functional brains and mere brains are never temporally or spatially coincident, but that the matter that composes a functional brain comes to compose a mere brain when the functional brain loses the capacity to generate consciousness. On this view, the functional brain is not a mere brain in a functional state. It is one substance with a certain set of identity conditions that include the retention of the capacity for consciousness, and the mere brain is a different substance with a different set of identity conditions that do not include the capacity for consciousness.

A second possible solution would be to adopt a version of eliminativism, according to which what exists before and after the existence of the functional brain in the region of space it occupies is merely a collection of particles that has the shape of a functional brain. While one of us (Campbell) is sympathetic to this eliminativist alternative, we agree that we need not commit ourselves to it since the rejection of coincidence is plausible and is a sufficient response to the too-many-subjects objection.

11.4. Objections to the Dicephalus Argument

We now return to the case against animalism, which is an indirect defense of the view we favor. In contrast to the familiar too-many-subjects problem, dicephalus presents animalists with a "not-enough-bodies" problem—or, rather, a "not-enough-animals" problem. Stephan Blatti views the challenge of dicephalus (or the dicephalus objection, as he refers to it) as a version of what he calls a "duplication objection." This kind of objection, he writes, "aims to demonstrate that a view—when correctly applied in a particular case—is committed to claiming of one thing that it is identical to each of two or more nonidentical things," thus violating the transitivity of identity. "Any duplication objection that satisfies this condition has," according to Blatti, "met its prima facie burden" (Blatti 2007: 595, 597).

Blatti compares the dicephalus objection with an objection to the psychological continuity criterion of personal identity that appeals to cases in which psychological continuity takes a branching form. He discusses one such case in which the cerebral hemispheres of a particular person, Peter, are divided and transplanted into the decerebrate heads of two separate bodies. After the transplant, the recipients of Peter's cerebral hemispheres, Righty and Lefty, seem to be two numerically distinct persons, each psychologically continuous with Peter. If psychological continuity is the criterion of diachronic personal identity then Peter should be identical both to Righty and to Lefty. But because Righty and Lefty are not identical to each other, the psychological continuity criterion violates the transitivity of identity. While both the dicephalus objection and the double transplantation objection are construed by Blatti as duplication objections, he claims that only the double transplant objection meets its prima facie burden. Only this objection, Blatti argues, appeals to "a possible circumstance in which the psychological criterion would be committed, by its own lights, to a violation of transitivity" (Blatti 2007: 598). The psychological criterion could avoid such a violation only if it were emended somehow. But, as Blatti points out, animalists are not committed by their own lights to an interpretation of dicephalus that violates transitivity. There are, in fact, several possible interpretations of dicephalus. The most natural interpretation is that there are two persons but only one organism. Call this view (a). Animalism would violate transitivity if (a) were true. The animalist could, however, accept one of the following alternatives. (b) There is only one organism and therefore only one of us—a single person with two minds, or a single mind divided between two brains. (c) There are two of us, and therefore two overlapping or fused organisms, each

one a separate person. (d) Dicephalus is what Blatti calls a "borderline case" in which the dicephalic twins instantiate enough of a certain cluster of properties to qualify as a candidate for being a single human organism, but not enough to qualify as a clear instance of a single human organism because they exhibit some properties that are not characteristic of a single human organism—"notably, the presence of two distinct subjects of experience, as well as the overabundance of various organs and appendages" (Blatti 2007: 604). Blatti expresses his view of dicephalus by stating that it involves more than one complete human organism, but fewer than two. There is also a fifth position that Blatti does not explicitly distinguish, namely, (e) that the number of human organisms and therefore the number of entities of our kind is indeterminate.

Blatti's claim that the double transplant objection meets its burden while the dicephalus objection does not is mistaken. For both objections fail to meet their respective burdens *as duplication objections*. We believe, however, that this does not diminish the challenge posed by either objection.

That the double transplant objection does not meet its burden is shown by the fact that there are several different interpretations of the case, none of which is logically incoherent and some of which are compatible with the psychological continuity criterion. (1) The first possible interpretation is that it involves three numerically distinct persons—Peter, Righty, and Lefty—who are related to each other in a way that would violate transitivity if psychological continuity were the criterion of our identity over time. (2) The second is that Peter survives the transplant as a single oddly shaped person with two disconnected cerebral hemispheres, each one controlling a separate body. The names "Righty" and "Lefty" co-refer to Peter, rather than referring to two separate persons or two disconnected parts of Peter, even though each name is associated with only one of his two bodies, just as the names "Hesperus" and "Phosphorus" are associated with different modes of presentation of the object to which they co-refer. On this view, despite appearances, Righty and Lefty *are* identical, and so there is no violation of transitivity. (3) A third alternative would be to claim, following David Lewis, that double transplant involves not three but two persons, each of whom exists both before and after the transplant. Prior to the transplant, these two temporally extended persons share a single person-segment, just as two overlapping roads might share a single segment of pavement before forking off in separate directions. (4) A fourth alternative would be to claim that double transplant is a borderline case in which there are fewer than two, but more than one person. This parallels Blatti's interpretation of dicephalus. (5) A fifth alternative would be to claim that there is no determinate fact about how many entities of our kind are present in double transplant. (6) Finally, there is the view that after the transplant Peter is wholly present at two noncontiguous regions of space which appear to be occupied by two nonidentical persons. Peter is located entirely at Righty's location, and entirely at Lefty's location. Thus, as in view (2), "Righty," "Lefty," and "Peter" are actually three different names for the same person.[5]

[5] See Hudson (2001). Blatti (2007) considers views (3) and (5) but treats them as ways of revising the psychological continuity criterion only after the double transplant objection has met its burden. As we

Blatti assumes that the psychological continuity criterion is initially committed to (1) and can avoid violating transitivity only if emended by, for example, the addition of a "no-branching" clause. Yet there is nothing about the psychological continuity criterion *per se* that initially commits it to (1). Rather, Blatti appears to assume that the psychological continuity criterion is initially committed to (1) simply because (1) is more plausible than any of the other interpretations. In this respect, the challenge of double transplant is like the challenge of dicephalus. For, although there are several possible characterizations of dicephalus, (a) is the most natural and plausible interpretation, and it is on this interpretation that animalism violates transitivity. Yet Blatti's comparison of the dicephalus and double transplant objections is illuminating because it reveals that neither objection is plausibly construed as a duplication objection. Rather, both objections challenge their respective targets by posing a dilemma: either the targeted view violates transitivity in a particular type of case, or its proponents must adopt an interpretation of that type of case that is less plausible than the interpretation on which their view violates transitivity. We believe the challenge of dicephalus successfully undermines animalism in this regard, since the most straightforward interpretation of dicephalus, (a), is more plausible than the alternative interpretations, (b) through (e). Consider (b), the view that in dicephalus there is a single person with two minds, or one mind divided between two brains. The problem with this view is that it involves an unacceptable distortion of our concept of a person. As Derek Parfit has recognized, (2) fails as a response to the challenge of double transplant for the same reason. In his well-known discussion of fission Parfit writes that:

> we ought to admit as possible that a person could have a divided mind. If this is possible, each half of my divided mind might control its own body. But though this description of the case cannot be rejected as inconceivable, it involves a great distortion in our concept of a person. . . . If a mind was permanently divided, and its halves developed in different ways, it would become less plausible to claim that the case involves only one person. (1984: 256)

One way of highlighting the implausibility of views like (2) and (b) is to consider their moral implications. For example, if (b) were correct, the surgical removal and destruction of one head in the case of the Hensel twins would be relevantly like a hemispherectomy in a normal person—a grave diminishment but not as seriously wrong as the killing of a person. But the removal of one of the heads in a case of dicephalus would clearly be the killing of one of us, and hence an instance of murder.

Views (d) and (e) face a similar objection. (We will consider (c) shortly.) If (d) were correct, removal of one head in a case of dicephalus would result either in a less obvious borderline case, or a nonparadigmatic case of one human organism, but not the killing of one of us, a person. And if (e) were correct, it would be neither true nor false that there had been a killing. Views (d) and (e) deny the existence of a human person.

mention below, we think Blatti is mistaken about this. Even initially, the psychological continuity criterion does not rule out any of the views we discuss here.

Blatti might reject our appeal to evaluative judgments as a way of deciding between the different interpretations of dicephalus. He explicitly warns against the use of such judgments as guides for shaping our metaphysical views about personal identity, suggesting that because our evaluative judgments derive from a broader moral framework, attributing

> binding metaphysical significance to these judgments . . . invites analogous determinations regarding other hard cases—cases where our normative intuitions may be . . . altogether contrary. Consider . . . the critic who rejects my borderline case view of dicephalus on the grounds that dicephalic twins present exactly two loci of moral status, and the number of such loci correlates with the number of us. Since moral status is typically attributed to an entity in virtue of its psychological capacities (e.g., the capacity to suffer, the capacity for self-consciousness), this critic should also attribute an analogous moral standing to each of the multiple personalities belonging to those who suffer from dissociative identity disorder. (Blatti 2007: 605)

But if an entity has moral status in virtue of its psychological capacities, this fact does not put pressure on Blatti's critic to attribute moral standing to the personalities exhibited by a patient with dissociative identity disorder. To attribute moral standing to an entity's *personality* would involve a rather egregious category mistake. Personalities are not themselves entities with psychological capacities, but are rather sets of dispositions *belonging to* entities with psychological capacities. It is the entity, not the personality, which has moral standing. Interestingly, our attitudes about what counts as acceptable treatment of dissociative identity disorder tell more against views (b), (d), and (e) than they do against the view espoused by Blatti's critic. If, for example, (b) were the correct interpretation of dicephalus and if the memories, beliefs, and desires encoded in one of the two brains were very different from or in conflict with those encoded in the other, one might expect the death of one of these brains to be beneficial for the double-minded or split-minded person, just as the elimination of certain memories, beliefs, and desires associated with a particular personality is commonly considered beneficial for a patient with dissociative identity disorder. Yet this is clearly implausible. The death of one of the brains in a case of dicephalus would constitute a loss precisely because it would be the ceasing to exist of a person.

We agree with Blatti that our moral convictions should not settle the matter about which interpretation of dicephalus is correct. But we also believe that such convictions reflect an antecedent metaphysical conviction that each dicephalic twin is a distinct person. It is because the Hensel twins are two persons—two entities of our kind—that we would view the loss of one of their brains as a much more serious matter than the loss of one of the personalities in a case of dissociative identity disorder.

It is worth noting a final concern about (d), Blatti's suggestion that dicephalic twins constitute more than one organism but fewer than two. We are uncertain whether he would say that this is compatible with (e); but it seems that it is not. The claim about indeterminacy has to be that it is indeterminate whether there is one organism or two. For it is clearly false that there is no organism at all and clearly false that there are more

than two. But the claim that it is neither true nor false that there is only one organism, and neither true nor false that there are two, is incompatible with the claim that there is more than one but fewer than two. For according to the latter claim, it *is* false that there is only one, and also false that there are two. Therefore, (d), as we interpret it, does not assert that there is indeterminacy, at least of a kind that one might claim to find in dicephalus.

But if Blatti is not claiming that the number of organisms is indeterminate, then it is hard to make sense of his view. Perhaps the view is that there is one human organism and a determinate fraction of another. But while one can make sense of the idea of a half of a dead organism (assuming, as most people do, that organisms do not necessarily go out of existence when they die), it is hard to make sense of the view that there could be a fraction of an organism that has a fraction of a life, or is fractionally alive. This challenge to the intelligibility of his view of dicephalus assumes that it is a substantive ontological thesis about the number of human organisms and persons in that particular case. Yet some of Blatti's remarks suggest that his account is merely semantic, or perhaps merely conceptual. He might be giving an account of when it is appropriate to apply the concept "human organism" ("human animal") in a particular case, thereby providing an adequate treatment of borderline cases, of which he believes dicephalus is an instance. If this is Blatti's project then he and we may be at cross purposes. For even if Blatti has offered a successful account of the appropriate application of the concept "human organism" we think that, at least with respect to persons, the question "How many are there?" is an ontological one that must be answered by providing a metaphysical account of persons. Such an account would be implausible if it entailed that in the case of dicephalus there was one whole person and a fraction of another.

We turn now to (c), the view that dicephalic twins are really two fused or overlapping organisms. This is the most plausible and the most common animalist response to dicephalic twins. Because, for example, the Hensel twins together have more organs than normally form a single complete set, and some of these organs belong to one twin rather than to the other, it is plausible to suppose that each of them is identical to a numerically distinct organism, but that each organism shares a large number of parts with the other. Thus, Matthew Liao notes that "each twin has her own stomach and heart; they have distinct brainstems and distinct spines that are only joined at the hips; and they have partially distinct organs that are united. This suggests that in fact, there are two organisms here although they are not fully independent organisms" (Liao 2006: 341).

Robert George and Patrick Lee echo Liao's view about the duplication of organs but also claim that each twin has some organs of her own, and that the twins' organs cannot all be parts of a single organism:

> The . . . difficulty in McMahan's argument concerning dicephalic twins is that if his interpretation of their situation were correct, then none of the organs in the twins could be assigned to one individual rather than the other. Each set of eyes, each set of ears, and so on, would not

belong biologically more to one girl than to the other. Each of these organs would have to be a part of a single larger organism, subservient to the survival and functioning of this one organism. But this plainly is not the case. It is indisputable that each one biologically has not only her own brain, but also her own skull, eyes, ears, and many organs, while sharing many other organs. (George and Lee 2008: 47)

Yet most of Abigail and Brittany's organs do serve both of them equally. This is true of all the duplicated organs below the neck, such as the esophagi, stomachs, and hearts. If, for example, the heart on one's side of the body were to die, the other heart would presumably be sufficient to continue to circulate blood to the whole of the organism, including the head on the side with the nonfunctional heart, since there is only one circulatory system and the areas to which the remaining heart would need to pump blood are not abnormally extensive. But a few of the duplicated organs serve only one of the two persons. Unsurprisingly, they are certain organs on that person's side of the body (where "body" refers to the single organic mass and does not presuppose that this mass constitutes only one organism). Thus, we say that one sibling's eyes "belong" to her because they are the ones that she sees with. That is exactly what one would expect when two persons are sustained by a single organism. Compare a case of highly asymmetrical conjoined twinning, when there is clearly only one person and one organism—for example, a case in which the only vestige of the second twin is a third leg. Assume that the conjunction was the result of the incomplete fusion of two embryos. In that case, there is a sense in which the third leg "belonged" to the twin that was largely absorbed in the process of fusion. But it is now part of the organism that sustains the one person. Similarly, in dicephalus, one sibling's eyes transmit signals that are received only by her and not by the other sibling, but these eyes are still part of the organism that sustains both siblings; both sets of eyes are caught up in the organism's life-sustaining processes.[6]

11.5. Craniopagus parasiticus

There is another actual type of conjoined twinning that resists description as two fused or overlapping organisms.[7] In craniopagus parasiticus, there is what one would naturally describe as one complete and fully developed human organism with a head in which the brain generates consciousness and both controls and receives signals from the body in the normal way. Yet, at the top of this head, there is a second head that is attached by a continuous growth of cranial bone and is thus upside down in relation to the primary head and the body. This second head has failed to develop a body and thus terminates in a truncated neck. As the name for the phenomenon implies, the second

[6] Mark Reid (Chapter 12, this volume) provides an example in which two persons use all and only the same organs, except that each is located in his own single cerebral hemisphere. This example is not vulnerable to George and Lee's objection.

[7] For an earlier discussion, see McMahan (2009: 286–98).

head draws life support from the organs below the primary head, yet it contributes nothing to their regulation, control, or functioning. There is no duplication of organs apart from those in the second head.

History records very few instances of craniopagus parasiticus, but at least two have occurred in the twenty-first century. In one of these, the parasitic head was surgically removed but the remaining twin died a little over a year later from an infection of the brain. Before the parasitic head was removed, it was observed to smile and blink, but we have been unable to determine whether it was carefully tested for consciousness or whether its anatomy was examined in detail after the separation. But whatever may be true of the recorded instances of craniopagus parasiticus, the fact that a second head, with its own brain, can develop in this way, and, as in one recorded instance in the eighteenth century, can remain alive for years, suggests that it is possible that there could be a case in which the brain in the parasitic head developed normally and thus would be capable not only of consciousness but also of self-consciousness. Suppose, then, that there were a case of craniopagus parasiticus in which the parasitic head contained a normally developed cerebrum, cerebellum, and brain stem, but in which the nervous system was truncated at the brain stem. Assuming that the cerebrum in the second head was physically and functionally entirely separate from that in the primary head, so that neither brain had any direct conscious access to the mental states of the other, each head would be a fully distinct, separate, and independent center of consciousness. Both heads would be self-conscious and each could speak through its own mouth.

It would be highly implausible to deny that in such a case there would be two persons—that is, two entities of the kind of which we are essentially and most fundamentally members—and that both would be persons in the Lockean sense as well. But if animalists were to concede that there would be two of us present, they would also have to accept that there would be two animal organisms.

Suppose that animalists recognize that this is the most plausible understanding of the hypothetical case of craniopagus parasiticus that is open to them. They might argue that it is entirely reasonable to suppose that there would be two persons and two organisms in this case, and that this is shown by the fact that they would be separable. The parasitic head could be surgically separated and kept alive, either by being artificially perfused with blood or by being grafted on to a headless cloned body. This could also be done, of course, with either of the heads in a case of dicephalus. There have in fact been actual cases in which the head of a higher animal has been surgically severed and then attached to the body of another living animal of the same species, remaining alive and demonstrably conscious for a short period following the transplant.

In the hypothetical instance of craniopagus parasiticus, the severing of the parasitic head is the only feasible way to separate the two persons. The severed head would be self-conscious and capable of sight, hearing, and speech. Its subjective experience would be indistinguishable from that of a person who has suffered high cervical transection of the spinal cord. It would clearly be a person and therefore, according to

animalism, must also be a human organism. And that is precisely what some of the leading animalists, such as Peter van Inwagen (1990: 169–81) and Eric Olson (1997), have claimed.

11.6. Severed Heads and Headless Bodies

Suppose that surgeons sever the head of a person with normal anatomy, maintaining the head alive and conscious throughout the process of separation, and then sustain it indefinitely through the provision of blood from an external source. Suppose further that they also provide the support necessary to keep the remainder of the original organism in a functional state. Is the head really a human organism? And is the remainder of the original organism now an organism as well?

There are six possible views about this case, which we will call the *Severed Head Case*. (1) One might think that the head sustains the original organism that has now been pared down to its minimal or almost minimal form, but that the headless body, even if its component parts continue to function, is not an organism. It might be a dead body—what some in the medical profession call a "ventilated corpse"—or merely a collection of particles. (2) Another possibility is that the head and body are each associated with a separate living organism. On this view, the surgical separation of the head and body is an instance of biological fission. (3) Although the head sustains a person—that is, one of us, or an entity of our kind—it is nevertheless not a human organism. Rather, the headless body is the original organism, which remains alive. (4) Neither the head nor the body sustains a human organism. On this view, the separation of the head from the body causes the biological death, and therefore the ceasing to exist, of the organism. (5) The head and body remain the constituent parts of the original organism, which survives as a "scattered object" whose parts now occupy noncontiguous regions of space. (6) The organism becomes a "multi-locator"—that is, an object that is wholly present at two separate regions of space—and thus survives the procedure as both the head and the headless body (Hudson, 2001). Of these six views, all are compatible with animalism except (3). Which is most plausible?

Since the notion of multi-location at a time strains at the boundaries of coherence and, as far as we know, has not been defended by any animalist, we merely note it as a possibility and will discuss only the other five views. View (1) consists of two claims that are both implausible.

Consider first the claim that the living though isolated head sustains a human organism. The reason that animalists give for thinking that the organism survives with only a head is not that it retains the capacity for consciousness. For they claim that our identity conditions are not psychological but biological. There is no more reason to suppose that the existence of an organ that generates consciousness is sufficient for the existence of an organism than there is to suppose the same about the existence of an organ that pumps blood. Rather, animalists tend to follow biologists in identifying

organisms with collections of organs, tissues, and cells that function together in an internally integrated way to maintain collective biological homeostasis. And they tend also to adopt the familiar position of those who argue that a fully developed human organism dies if and only if its brain dies because the brain, and in particular the brain stem, is what regulates and coordinates the functions of the various organs, so that the processes they individually sustain together constitute a life. On this view, the brain, or even just the brain stem, is the biological core of the organism, the internal integrator of the processes that are constitutive of the organism's life, and thus of its existence. Animalists therefore argue that an organism may be pared down to an isolated head or an isolated brain or even an isolated brain stem; but in the absence of a functional brain, all the other parts that once composed an organism will no longer do so, even if they all individually remain alive.

Suppose, for the sake of argument, that the brain stem really is the regulatory center and thus the biological core of a human organism, and that it is therefore possible to pare such an organism all the way down to a functional brain stem—that is, that a human organism can survive in the form of a brain stem but not as any other collection of parts that does not include the brain stem or some functionally equivalent part (van Inwagen 1990: 45, 140). But then suppose that we modify our earlier hypothetical case of craniopagus parasiticus so that the parasitic head has a fully developed cerebrum but a truncated, or only a partially developed, lower brain. Suppose, for example, that the areas of the reticular formation, which is necessary for consciousness, that extend into the brain stem are present and functional, while other areas of the brain stem that would normally serve to regulate certain somatic functions are not developed at all, as is true in such a case of all the other areas of the central nervous system that normally form below the brain stem. If the parasitic head were then surgically removed, remaining conscious throughout the operation, and were then sustained indefinitely by the external provision of a blood supply, it would be a person but not, in the absence of a brain stem, a human organism. That, however, is not a possibility that can be recognized by animalists who claim that a human organism requires an internal regulatory center. They must give up either the claim that a functional brain stem is necessary for the existence of a human organism or the claim that a person could survive with only a severed head.

We reject the claim that an organism could survive with nothing but a severed head composed of living organs, including an intact brain stem. Neither the brain stem nor the brain as a whole is either necessary or sufficient for the regulation and integration of the functions of the other bodily organs. That the brain and brain stem are not necessary is demonstrated most clearly by a case reported by Dr. Alan Shewmon. A boy of four was diagnosed as brain dead but, because his mother refused to accept that he was dead, was transferred to her home where, with only mechanical ventilation, the provision of nutrition and hydration, and basic nursing care, his body continued to function normally except, of course, in the generation of consciousness. More than fourteen years later, Shewmon was permitted to perform an examination, which revealed that

"the entire brain, including the stem, had been replaced by ghost-like tissues and disorganized proteinaceous fluids." Yet, Shewmon observed, "while 'brain dead,' he has grown, overcome infections and healed wounds" (Shewmon 1998: 136). What this case shows is that even in the absence of any brain at all, a human body can remain comprehensively functional for years with no more external life support than that required by many fully conscious and uncontroversially living human beings. The basic biological functions of the boy's body remained internally coordinated; it is just that the integration was decentralized, with organs responding to signals from other organs, rather than centralized in the activities of the brain stem.

Animalists might argue that what is necessary for a human organism to continue to exist is not that it retain a functional brain stem, but that it continue, with minimal external support, to be self-regulating and self-sustaining. According to van Inwagen, a living head satisfies that condition, while a headless body does not:

> Give the severed head the proper environment and it will maintain itself, but the headless body will need a constant supply of "instructions" in the form of electrically transmitted information. Unlike the head, it will not be able to coordinate its activities. A life-support system for the head will be no more than an elaborate pump. A mechanical life-support system for the headless body must involve the functional equivalent of a computer. (1990: 177–8)

But neither of these empirical claims is true. As Shewmon's case vividly illustrates, a headless body can remain functionally integrated with the assistance of little more than a pump, albeit one that supplies oxygen rather than blood. A severed head, by contrast, requires a great deal more than a pump. The blood that the pump carries to the head has to be continuously renewed, a function that can be performed by the bone marrow in a headless body but not by the head itself. The blood must also be cleansed of toxins and supplied with immune cells and oxygen—functions that again can be carried out by a brainless body, such as the one described by Shewmon, but not by a severed head. Indeed, a living but isolated head has no internal regulation or integration, even of a decentralized sort. The regulatory capacities of the brain stem are idle since they are concerned with areas of the body to which the head is no longer connected. The constituent organs of the head, such as the brain and the eyes, may signal one another but they do not cooperate in maintaining biological homeostasis or sustaining themselves as a unit. Almost everything they need for survival must be externally supplied. If self-regulation and self-sustenance are necessary for being an organism and if, despite having a fully functional brain stem, an isolated head is neither self-regulating nor self-sustaining, then having a fully functional brain stem is not sufficient for being an organism.

The second of the two claims that together constitute view (1) of the Severed Head Case assumes that a living organism could not persist as a headless, ventilated, and fully functional body. This claim is also refuted by Shewmon's actual case, which shows that a body can be self-sustaining with no more life support than is required by a person whose spinal cord has been severed at the neck. The only significant function

that a person in this condition can perform that the boy in Shewmon's case could not is the exercise of consciousness and mental activity. That makes it hard, especially for the animalist who claims that the capacity for consciousness is inessential to our existence, to deny that the boy is a living human organism. Yet the boy's head could be removed without any effect at all on the life processes occurring below the neck. Thus, both of the claims made by the first of the four positions cited earlier appear to be false.

The second of those positions, which is also compatible with animalism, is that both the severed head and the headless body would each sustain a separate organism, so that their initial surgical separation is an instance of biological fission. If, however, we are right that a human organism cannot survive with only an isolated head, then this position is also untenable, even though it is correct in its assumption that an organism can exist with only a headless body. But it is worth noting three further objections to this second position, since there are bound to be some who are unpersuaded by the arguments we gave to show that a human organism cannot survive with only an isolated head. First, this position, as it is understood by animalists, implies that one of us, indeed that each of us, could in principle survive without a head. We find that counter-intuitive, though animalists may not. Second, if the separation of the head from the body is an instance of fission, the animalist seems committed to one of three conclusions about what happens to the original person. The most plausible options for the animalist are: (i) that the original person goes with the head, while an entirely new individual of our kind comes into existence as a headless organism; (ii) that the original person survives with only the headless body, while a new person comes into existence and is sustained by a severed head; and (iii) that the original person ceases to exist but is replaced by two entirely new individuals of our kind. None of these claims seems plausible.[8]

Third, and finally, if the separation of the head and the body is an instance of fission, we must ask what would happen if they were surgically "reunited." There are in fact two possible modes of unification, which animalists must treat quite differently. The head and body might be connected in just the way that they (or the bits of matter that were physically continuous with them) were connected prior to separation, so that they would function together as a unit in an internally integrated way. This would seem to be an instance of biological fusion, in which the head-organism and the body-organism would both cease to exist and be replaced by a single new organism that might be

[8] It is worth noting that there are at least three other options available to animalists. They could say (iv) that there are two organisms collocated prior to the fission, and that the person is identical to one of them, although we do not know which; (v) that there are two organisms collocated prior to the fission, and that the person is identical to the one that has the severed head after the fission, while the other survives fission with the headless body; and (vi) that there are two organisms collocated prior to the fission, and that the person is identical to the one that has the headless body after the fission, while the other organism survives fission with the severed head. We find these alternatives less plausible than (i) through (iii). Moreover, we doubt that animalists will want to defend any of these alternatives, since they all seem vulnerable to a version of the too-many-subjects problem, on which the collocated animals share the same mind prior to the fission event.

qualitatively indistinguishable from the original pre-fission organism, apart from a few surgical scars.

The other mode of reunification is quite different. Recall that both the severed head and the headless body have external life support systems. It is possible that the head could be surgically attached to the body and partially neurologically connected with it while both would retain their external life support systems. Suppose, for example, that the head would continue to receive cleansed, oxygenated blood from an external source, and that the brain would be able to receive sensory signals from the body and to control its movements, but that the body would continue to receive external ventilation and that its integrated functioning would continue to be decentralized rather than governed by the brain stem. This, it seems, would not be a case of fusion but of conjunction, in the manner of superficially conjoined twins—that is, a case of two distinct organisms, each self-sustaining, conjoined at the neck, and sufficiently neurologically integrated that, apart from any visible life-support mechanisms, they would appear indistinguishable from a single ordinary person. That is, on the assumption that the separated head and body are both organisms, their continued biological independence after reunification means that they would continue to be distinct organisms. Even though we began with only one of us, when we separated the head and body we created two organisms and thus, according to animalism, two of us. Uniting these organisms neurologically but not biologically leaves both of them in existence, so the animalist must accept that there are two of us even though the head and body act together in the manner of a single person, and even though the conscious subject in the head would think of the conjunction as his being reunited with his body and would regard himself and his body as constituting a single person, or a single entity of our kind. Indeed, he might, in defense of this perception, urge animalists to consider that his condition could be replicated in any person simply by severing certain connections between the brain stem and the body and providing the head and the body with independent life support systems. That, he might claim, would not be an instance of personal or biological fission and would certainly not constitute his ceasing to exist and the simultaneous creation of two new human organisms and hence two new persons. And he would be right.

If, as we have argued, Shewmon's case establishes that a human organism can survive without a brain, the fourth of the six positions cited at the beginning of this section is also false. This leaves only the third and fifth positions.

The fifth position—that the organism survives with the head and body as spatially separate parts—seems incompatible with the view that an organism is a collection of parts that all function together in an internally integrated way to maintain collective biological homeostasis; for after their separation, the head and body do not interact at all. This view is, therefore, unlikely to appeal to those animalists who claim that organisms are essentially alive. But there is a more serious objection to any version of animalism on which the head and body continue to compose a human organism even after they are biologically disconnected. Suppose the severed head were attached to a

third animal body so that they interacted in the same way that most human animals' heads and lower bodies interact. If the head and the new animal body were fully integrated in this way, animalists would have to regard them as parts of a new organism. But there is no reason to suppose that its attachment to a new body would cause the head to cease to be a part of the old organism. For two or more organisms can share parts, as occurs, for example, in superficially conjoined twins. But if the head remains part of the original organism after it has been separated from the rest of the body and would not cease to be part of that organism if it also became part of a numerically distinct organism, then the old and new organisms would share the same brain. Two distinct organisms would therefore share every mental state produced by that brain—a bizarre version of the too-many-subjects problem.

Of the original six positions concerning what would happen if a human head were separated from its body and both were kept functional by means of external life support, only the third remains. We believe it to be correct—that is, we believe that the original person would be a part of the severed head, which would not sustain, or be a part of any organism, while the original organism would survive with the headless body. If this is right, we are potentially separable in this way from our animal organisms, and so cannot be identical with them. Animalism is false.

11.7. Cephalopagus

This conclusion can be reinforced by consideration of another form of conjoined twinning: cephalopagus. A brief and perhaps tendentious description of this phenomenon is that there is one head with two bodies—the antithesis of dicephalus. In one case, reported in 2008, a single head contained a single cerebrum but two cerebella and two brain stems. In addition to four arms and four legs, there were two spinal cords, two hearts, four lungs, two livers, two spleens, four kidneys, and so on. If the duplication of organs indicates the presence of two organisms, there would seem to have been two in this case. There was, however, only one esophagus and one stomach, and the cerebrum was formed from four fused cerebral hemispheres (so that there was also fusion of the faces) and so may not have been capable of supporting consciousness (Hovorakova et al. 2008).

In another case that is more promising for our purposes, there was a single head containing a single cerebrum composed of two cerebral hemispheres, but two cerebella and two brain stems. Although there were two hearts, two spinal cords, two spleens, and two bladders, there were only two lungs, and only one esophagus, one stomach, one liver, and one pancreas (Kokcu et al. 2007).

The report of the first of these cases does not mention whether or for how long the conjoined twins survived birth. In the second case they died twenty minutes after delivery. There is no mention in either case of whether there were signs of consciousness. So, neither of these actual cases is a clear instance of a single subject of consciousness

resident in the area of overlap between two distinct human organisms. But these cases occupy positions on a continuum of actual and possible cases—a continuum that includes more possible than actual cases because cephalopagus is extremely rare. If the phenomenon were more common, there might by now have been an actual case that, like the second case we cite, had a single normally formed cerebrum with two cerebella and two brain stems, as well as a single face, mouth, and throat, but that, unlike that case, had two esophagi diverging from the single throat, each leading to a different stomach, as well as the normal complement of other organs and appendages in each half of the total bodily mass below the neck. There is, as far as we can tell, no reason to suppose that such a case is a physiological impossibility. If there were such a case, and if it, or they, were to survive long enough to experience not only consciousness but also self-consciousness, and if consciousness is confined to the cerebrum and is not generated in the cerebellum or brain stem, then it seems that it would be a clear case in which there would be only one self-conscious mind but two human organisms.

That there would be two organisms is suggested by the fact that they would be separable, perhaps even with technologies that already exist or will exist soon. They might, for example, be separated asymmetrically, with one taking the cranium, the cerebrum, and one each of the cerebella and brain stems, and the other taking only a cerebellum and brain stem and thus requiring an artificial cranium to house them. This would result in two self-sustaining organisms: one relevantly like a normal person, the other, without a cerebrum, relevantly like a patient in a persistent vegetative state whose cerebrum had been destroyed but who could remain biologically alive with little external support other than nutrition and hydration. Alternatively, these hypothetical cephalopagus twins might be divided symmetrically, with each taking part of the cranium, one cerebral hemisphere, one cerebellum, and one brain stem. Each would then be relevantly like a patient who has received a hemispherectomy, although each would require a partial artificial cranium. (In our view, though not that of the animalist, this would be a case in which one of us would undergo fission.)

This hypothetical though not unrealistic case of cephalopagus combines with dicephalus to present a formidable challenge to animalism. Earlier we distinguished several options available to animalists with regard to dicephalus. Of these, the one that is clearly most plausible is to accept that because there are various duplicate organs and two wholly independent brain stems, there are two overlapping organisms and therefore two of us. Next recall what options are available to animalists with regard to our hypothetical case of cephalopagus. They can accept that because there would be only one cerebrum, there would be only one mind and therefore only one person, or one of us. That would oblige them to say that there would be only one organism. But that seems impossible to reconcile with their most plausible interpretation of dicephalus, namely, that there are two overlapping organisms. Every reason that animalists have cited in favor of the view that there are two overlapping organisms in a case of dicephalus—that there is considerable duplication of organs, that there are two functional brain stems, etc.—counts equally or even more strongly in favor of the view

that there are two overlapping organisms in a case of cephalopagus. There is no principled reason for treating dicephalus as two organisms but cephalopagus as one. If, therefore, animalists accept that there is only one person, and thus only one organism in cephalopagus, it seems they must accept that there can be only one organism, and thus only one person, in dicephalus. It is, however, very difficult to believe that the Hensel twins are only one person. So it seems that animalists must accept that there are two organisms in cephalopagus.

That is highly plausible. What is implausible is what that view entails according to animalism, namely, that in our hypothetical case of cephalopagus there are two of us. If the cerebrum in that case has matured to a point at which the mind it sustains is fully self-conscious, there would undeniably be a person present, someone who, with his single mouth, could engage with us in rational discourse while punctuating his assertions with multibrachiate gestures. But it is highly implausible to suppose that there are two persons present. There is only one cerebrum—one consciousness–generating entity—and therefore a single unified mind, exactly as in the case of any ordinary person. How many limbs or organs there are below that single center of conscious experience seems irrelevant to how many persons, or individuals of our sort, there are.

Perhaps animalists could claim that although there are two organisms and therefore two of us, only one of the two entities of our kind would be a person *in the Lockean sense*. This is possible because, according to animalism, we are not essentially Lockean persons. Personhood is just a phase through which most of us contingently pass. But the problem with this response is that both organisms are related to the cerebrum in exactly the same way. Anything that might give one organism a claim to be a Lockean person would be equally true of the other. There can therefore be no reason to suppose that one organism rather than the other is the person. Animalists might try to argue that one organism is the Lockean person but that we cannot know which one it is, or that it is indeterminate which one is the person, but these are strategies of desperation with little credibility.

This leaves animalists with yet another form of the too-many-subjects problem. Unless they are willing to accept that in dicephalus there is only one organism, in which case their view will be refuted by dicephalus, they have to accept that there are two organisms in cephalopagus. Their view therefore entails that there are two of us in cephalopagus, and indeed two Lockean persons if the cerebrum has achieved self-consciousness, despite the fact that there is only one center of consciousness, just as there is in any ordinary person. For every thought generated by the single cerebrum, animalists must say that there are two thinkers. These are not thinkers of different kinds—for example, an animal and a person—but two thinkers of the same kind: human animals. They are also not spatially coincident but are animals that are physically overlapping in the consciousness-generating regions.

Because animalists typically argue that the brain stem is the "control center" and therefore the essential core of a human organism, they might try to argue that in cephalopagus there are two control centers for a single organism, just as a single airplane

might have duplicate controls for two pilots. This might be plausible if both brain stems in cephalopagus cooperated in regulating the entire bodily mass below the neck. But, in fact, each is connected to the central nervous system below it in only one half of that mass. Each, in short, has regulatory capacities with respect to only one of the two fused bodies. There is, it seems, no plausible basis for the claim that cephalopagus is a single organism. And this is true quite independently of that claim's implication that there is only one organism in dicephalus.

While it seems that animalists must accept that cephalopagus is a case of two persons who share the same mind, we think it is a case in which the operations of a single cerebrum sustain a single unified and self-conscious mind, which is, as in all other cases that satisfy this description, the mind of a single Lockean person. There is no one else who thinks this one person's thoughts. In this case, however, this one person is sustained by and controls two overlapping human organisms. Yet one person cannot be identical with two nonidentical organisms. Since anything that might suggest that one organism was identical with the person would be equally true of the other, there is no reason to suppose that one of the organisms but not the other is the person. It seems, therefore, that neither organism is identical with the person. In our hypothetical case of cephalopagus, there are three distinct or nonidentical individuals: an individual of our kind—a person who is, we are supposing, made up of the matter in the consciousness-generating areas of the brain—and two human organisms. If this is the correct description, animalism is false.

Animalists might be tempted to assert that the debate between them and their opponents ends in a draw. They have shown that theories that claim that we are not identical to but are spatially coincident with entities such as organisms or brains face a difficult too-many-subjects objection, and we have now shown that animalism faces one as well. But defenders of psychological accounts of our identity have a variety of resources for addressing their too-many-subjects problem. They have argued variously that only psychological continuers can have psychological properties, that only psychological continuers are capable of self-reference, that we and our constituting organisms are nonidentical yet not numerically distinct, that we are parts of our organisms, that there are no brains but only functional brains, and that we are identical with functional brains that have different identity conditions from those of mere brains and are never spatially coincident with mere brains. It is worth noting that there are no parallels to these responses that are available to animalists in addressing the too-many-subjects problem we have just advanced against their view. This is because animalism's too many subjects are of the same kind rather than spatially coincident entities of different kinds. It does not help, therefore, to claim that only biological continuers can have psychological properties or refer to themselves, since both organisms in cephalopagus have biological identity conditions. Nor is it possible to claim that the two organisms in cephalopagus are nonidentical but numerically one, or that one, which thinks nonderivatively, is a proper part of the other, which thinks only derivatively; for each has proper parts that the other lacks. Eliminativist strategies are also unavailing

because the two alleged subjects in cephalopagus are of the same kind; hence, any proposal that would eliminate one would also eliminate the other. Finally, there is no parallel to our favored solution, which is to deny spatial coincidence by claiming that the same matter composes different entities at different times. For in cephalopagus, the two organisms undeniably exist simultaneously.

It seems, therefore, that the too-many-subjects problem to which animalism is vulnerable is far more intractable than the one that faces the rival psychological accounts. Those who have thought that animalism is the frontrunner in the debate about our identity on the ground that it is uniquely exempt from this objection are badly mistaken.[9]

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