# Metaphysical Worries about Brain Death

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*Draft version, not for citation or distribution. Rather poorly documented, loosely written, and at times vaguely argued. Thank you for your patience. Meanwhile, please send devastating objections to gorman@cua.edu.*

## Introduction

We're interested in the question of brain death. The core question is whether brain death is the same as death-death, i.e., whether the fact that a human being is brain dead means that that person is unqualifiedly dead. The question could hardly have arisen before the quite recent invention of certain technologies, such as mechanical ventilation. Since the late 1960s, the standard view has been that a patient who is brain dead is a patient who is dead. Since the late 1990s or so, however, reasons for doubt have begun to emerge, above all in the work of Alan Shewmon. In a way, then, the current brain death debate is almost twenty years old. That might sound like a pretty long time, but I don't think it is. The brain death question depends for its answer on having a clear view of some very deep issues in metaphysics and related fields, and twenty years is hardly any time at all for thinking about such matters. They are very deep and very difficult, issues about which one can go for years at a time not realizing that one is in the grip of an important confusion or fallacy. I cherish the hope that we are really just at the beginning of a long debate about this topic, a debate that will vex very smart people for a long time. I say "hope" because if the debate is over soon, that will be because the intellectual community has jumped to conclusions. I hope that this won't happen.

Let me put it in another way. We all know we are fallible, and we all know that we should say, from time to time, "Of course, I could be wrong." But sometimes this is hardly more than a polite nothing. I think this is an area where a polite nothing is seriously out of place. If we are bold enough to have opinions in this area, we should hold them very, very lightly. We should be kept up at night worrying about the very real possibility that our thinking is completely mixed-up. We need to learn to live, for years and decades, with uncertainty.

In this paper I will proceed as follows. First, I'll briefly touch on a few preliminary issues, just to get them out of the way. Second, I will lay out some of Shewmon's key ideas and distinction as clearly as I can, more clearly perhaps than he has done himself. Third, I will set forth what I take to be a version of his line of argument. Fourth, I will raise and respond to a series of objections to the Shewmonian line of argument as I've presented it.

## Preliminary points

The first preliminary point is very simple. My title mentions "metaphysical" worries, but some perhaps will be inclined to doubt that the points I will raise are, strictly speaking,

metaphysical. Perhaps they belong instead to the philosophy of nature or to philosophical psychology. I'm raising this point only to say that I'm not going to get into it. I'm pretty sure that even if the issues themselves belong strictly to non-metaphysical sciences, their resolution requires at least some resort to metaphysics itself. But I don't think that what we say about this will shed any light on the question of brain death. However you label the issues, they are the issues they are.

The second preliminary point is more complicated, too complicated to deal with here in a conclusive way. Many of the parties involved in these debates are Catholics, and for them, it's important to know what the Church's magisterium has to say on the issue. It's important because magisterial authority always has some weight. Sometimes it has a lot of weight, and sometimes it has so much weight that it binds one to taking one conclusion over another. Well, to state my view without giving any reasons for it, I think that the Magisterium hasn't come close to settling this matter. I think that Catholics can, without fear of being in defiance of the Church's authority, hold that brain death is death or that it isn't. Maybe at some time in the future there will be some clear and forceful magisterial pronouncements on the issue. When that happens, well, we'll read them.

The third preliminary point is also complicated and difficult to deal with. Many of the participants in these debates appeal to Aristotle and or Thomas Aquinas. But what is the role of Aristotelian-Thomistic-Scholastic thought here? Because thinkers like Aristotle and Aquinas clearly hold some clearly false views, it's no good appealing to what they say without subjecting it to critical inquiry: we already know that they are sometimes wrong, so therefore we can't assume without reflection that their views on topics relevant to brain death are right. Now probably no one in the brain death debates is actually so naively and sycophantically Aristotelian/Thomistic as that—at least no one I know of is! But once we agree that we have to be critical in our appropriation of this tradition, the troubles begin. Just how authoritative should we take Aristotelian-Thomistic principles to be? Suppose someone holds a certain view about brain death, and suppose it becomes pretty clear that their way of thinking about it is not nearly as Aristotelian as they thought. Should they care? In a Catholic context, having Aquinas on your side is often *rhetorically* useful, of course, but that's not what I'm talking about![1]

So much for preliminaries.

[1] For a detailed and valuable discussion of brain death with attention to key texts in Aristotle and Aquinas, see Mark Spencer's under-appreciated "A Reexamination of the Hylomorphic Theory of Death."

## Some Shewmonian ideas

Shewmon's conclusion is that at least some brain-dead bodies (BDBs)[2] are living human beings.[3] How does he arrive at this conclusion? Roughly speaking, his idea is this: clinical observations give us good reason to think that some BDBs exhibit unified life-processes in such a way that they, the BDBs, seem to be living organisms.[4] This is stated pretty vaguely, and that's intentional: I want to get the rough idea out there, in rough form, before getting into the details. As it turns out, getting the details right is not as easy as it seems. In particular, I have not used the word "integration," a word which, as I shall explain below, is potentially confusing.

To begin with, we have to get clear on some ideas that Shewmon very clearly holds.

First, there is the distinction among "structural-functional" levels. Shewmon mentions at least five: organism, body system, organ, cell, and cellular organelle.[5] It's important to realize that he accepts the idea that there can be life at levels other than the organism level;[6] it's also important to realize that in the debates over BDBs, this is not at issue. The question is not whether the BDB is a living organism as opposed to, say, a living organ. It's clear that if the BDB is a living thing at all—that is, if it is a living thing, i.e., one living thing—then it is an organism. The question instead is whether the BDB is one living organism or instead merely a plurality of cells or organs or whatever. The importance of this will, I hope, emerge as we go on. (That the question is unity vs. plurality may alert some readers to the fact that I have managed to write this paragraph without using the word "integration," although to be sure Shewmon uses it himself. Again, there are difficult issues here that I am trying to leave open.)

Second, there is the distinction among "vital-operational" levels, of which Shewmon distinguishes three: vegetative, sensorimotor, and intellectual-volitional. At the first we find nutrition, metabolism, and so on. At the second we find color perception and the like. At the third we find concept formation, intention, and so on.[7]

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[2] Why is this a good term? Well, it's a bit frustrating to both sides: someone who is inclined to say that BDBs are living humans might prefer "brain-dead patient," and someone who is inclined to say that BDBs are not living humans might prefer "corpse." It's hard to find a formulation that doesn't beg the question in one way or the other; this formulation at least has the advantage of annoying both sides.

[3] Shewmon does not think that all BDBs are living humans, and not merely for the obvious reason that some are obviously fully-decayed corpses, all of whose cells have utterly died: "I have always maintained that there probably *are* cases of brain death in which integrative unity has been lost, and this is precisely why they deteriorate relentlessly to asystole regardless of the most aggressive therapeutic interventions" (Shewmon, "You Only Die Once," 456).

[4] To this one would have to add a reason for thinking that the organism that the BDB is is a *human* organism; this point will become apparent later on.

[5] Shewmon, "Once," 430-431. He mentions in a footnote (430n19) that one could think of trunk, limbs, and heads as another kind of level, and also that one could go below organelles to talk about macromolecules and so on down.

[6] Shewmon, "Once," 437.

[7] See Shewmon, "Once," 431-432. Here too, Shewmon says that further distinctions can be introduced.

Now for a third distinction. At this point, unfortunately, I think I'm going to have to end my embargo on using the word "integration," because it's a word that Shewmon uses a lot. Others use it too, but in different ways—for example, it's quite clear that Shewmon and Condic are not using the word in the same way. This obviously gives rise to a dangerous situation. A misunderstanding might well arise.

It seems to me that Shewmon is, although not as explicitly as he might, starting from a very general and even generic use of the word "integration": if a number of things are, somehow or other, coming together in some kind of common way, that's enough to call it "integration." He then goes on to specify different sorts of integration. Other thinkers might dismiss some of these as "not really being integration." Well, that's probably just a verbal dispute—a dispute over who gets to use the word "integration." We will need to work hard to avoid falling into merely verbal disputes, because they are distractions from the substantive issues.

So, then, Shewmon distinguishes two types of integration: "life-constituting" integration and "life-sustaining" integration. Let's start with the latter. In life-sustaining integration, various things (activities, whatever) come together in a way that sustains a life; "life-sustaining integration merely helps [something] to *stay* alive." Note that life-sustaining activities (or whatever) presuppose that a life is already there; if there isn't life already there, there can't be the sustaining of life.[8]

Without life-sustaining integration, you'll die very soon, and that means that life-sustaining integration is very important. But there's another kind of integration that is, from Shewmon's point of view, even more important. It's the one that gives rise to life in the first place: As he puts it, "constitutive integration makes something to *be* alive." When a number of things (cells, organs, functions, whatever) come together in such a way that something is alive in virtue of those things being/functioning together in that way, then we have constitutive integration. Roughly speaking, Shewmon's idea is this.[9] A living thing is, from the physical point of view, a "bubble of anti-entropy." It's a system that resists entropy. This system is, to a first approximation, constituted by the processes that resist entropy. But note that these processes—should one say rather "this process"?—does not gives rise to the living thing if that means that the living thing is a product of that process: "When I say, for example, that active anti-entropic exchange 'constitutes' the living body, I simply mean that it is, physically speaking, the very life process itself of the living body."[10] Somewhat as the

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[8] For life-sustaining integration, see Shewmon, "Once," 438-439; the quotation is at 438. See also Shewmon, "The Brain and Somatic Integration," 464, which speaks of functions that are "directed toward enhancing and preserving a somatic unity *already presupposed*." Not important for our analysis here is a further distinction that Shewmon makes between two types of life-sustaining integration, inward-directed "health-maintaining" integration, and outward-directed "survival-promoting" integration.

[9] For the basic idea of life-constituting integration, see Shewmon, "Once," 435-438. Condic distinguishes "integration" from "coordination" ("Determination of Death," p. 15). It's pretty clear that her definition (quoted later in this paper) targets what Shewmon would call "life-sustaining" rather than "constitutive" integration. Additional work would need to be done to see clearly how her distinctions are relevant to Shewmon's idea of constitutive integration.

[10] Shewmon, "Once," 437.

very act of hiking makes me a hiking person, so the very act of entropy-resistance makes me a living organism.

Shewmon is careful to say that all this is a description in *material* terms. He means at least two things by that. First, that life isn't reducible to thermodynamics.[11] Second, that while the body is constituted *materially* by anti-entropic exchange, as an anti-entropy bubble, it is constituted *formally* by the soul. "The soul is the immanent first principle accounting for the living body's actuality, for its being vitally integrated in the first place."[12]

It seems to me worthwhile to add the following clarification at this point. On Shewmon's conception, a living thing is a system that resists entropy, i.e., that resists it as one entropy-resisting system. This is important for the question of brain death in the following way: the mere fact that entropy is being resisted in a certain place (say, on top of a hospital bed) does not prove that what's on top of the hospital bed is an organism, because we might (for all we know so far) be dealing with a plurality of entropy-resisting systems (organs or cells, for instance). This important fact goes together with Shewmon's explicit claim that this kind of integration "occurs at every functional-structural level": there are live

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[11] Shewmon, "Once," 439 and 439n29.

[12] Shewmon, "Once," 437. There is, of course, much more to be said than this. Shewmon says just a bit of it, at 437n31. But what he has said is already enough to allay the concerns of Moschella, who says, "It seems that the concept 'constitutive integration' in Shewmon's argument effectively plays the role of the concept 'soul' in Aristotelian-Thomistic metaphysics" (Moschella, "Deconstructing the Brain Disconnection-Brain Death Analogy and Clarifying the Rationale for the Neurological Criterion of Death," 10). Soul for Shewmon is clearly not constitutive integration, but rather its ultimate principle, and perhaps indeed not even its immediate principle: at 437n31, he suggests that soul is the principle of being alive and that constitutive integration is the "primary and fundamental manifestation" of being alive. Whatever one thinks of all this—Shewmon hasn't really said enough to make a clear judgment possible—he certainly doesn't *identify* constitutive integration with soul.

Moschella takes up the possibility that Shewmon isn't identifying them at p.11n12, but she is not satisfied: "if that is what Shewmon means by constitutive integration [that it is not the soul, but the result of the soul], then it is not clear why constitutive integration has to be 'all or none,' since this is not true of the actions and operations of which the soul is the formal principle." To avoid interpreting her argument as question-begging, I think she must mean the following: the *usual* actions and operations of which the soul is the formal principle aren't all or nothing, so why should *this* operation, namely, constitutive integration, be all or nothing? To that, Shewmon would surely answer that constitutive and sustaining integration are so very different that there is no reason to suspect that what's true of one will be true of the other, and that that is so most of all with respect to the very all-or-nothing question: you can be better or worse at finding food, a sustaining operation, but you can't be more or less alive. Moschella also complains that if constitutive integration for Shewmon is the result of the soul, then he shouldn't say that constitutive integration is what "makes" a body to be alive and to be a whole, because only the soul does this. This strikes me as a misreading of Shewmon's intention, but admittedly his words can be read in more than one way. He could put it less ambiguously by saying that being constitutively integrated is (materially speaking) ~~what makes a body be alive~~ what it is for a body to be alive. See the quotation given in the main text above, at note 10.

organisms but also live organs and so on.[13] So, as we will see soon, from Shewmon's point of view it's not enough to say that life-constituting processes are happening: it's important to indicate what the subject of those life-constituting processes is.

The question of what is really involved in this "constitutive integration" process or processes is, clearly, utterly central. I doubt that we know in sufficient detail what it involves.[14] But despite its utter centrality for Shewmon's analysis, I fear that his critics do not always pay adequate attention to it—when they pay attention to it at all.

And now on to still another distinction that Shewmon clearly makes. Borrowing from Bernat et al., Shewmon distinguishes between the question of the completeness of an organism (which we have when the whole organism is there, i.e., when it is not missing any parts or functions), and the question of whether what might be an organism is functioning as an "organism as a whole."[15] It's the latter that is decisive for thinking about brain death: we need to know not whether the BD has all of its parts and functions—clearly it does not—but whether it functions as one whole "integrated" (that word again!) organism.

Next let's note a pair of concepts that Shewmon touches on very briefly: emergent and holistic properties. He explicates them in the following way:

> A property of a composite is defined as 'emergent' if it derives from the mutual interaction of the parts, and as 'holistic' if it is not predicable of any part or subset of parts but only of the entire composite.[16]

He indicates in a footnote that he doesn't mean to endorse any possible reductionistic overtones of "emergent." I'm not going to get into it here, but I would like to point out that the notion of emergence is *extremely* complicated and difficult.[17] As for "holistic," I want to propose a distinction that I'm pretty sure that Shewmon would accept—anyway, I think he needs it. First, there's "generically holistic," which is said of *types* of property. A property type is generically holistic just in case it's a property type that can apply only to a whole and not to any of its parts. For example, circularity is a generically holistic property-type: only whole circles, and never their parts, can be circular. Second, however, there's

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[13] Shewmon, "Once," 437.

[14] One question among many: Can one tell directly (so to speak) whether a system is one whole entropy-resister, or must this always be inferred on the basis of the fact that the system is performing other functions emergently and holistically—functions that are secondary (sustaining) relative to this primary (constitutive) function? Shewmon suggests that the indirect approach is necessary—see "Once," 468—but perhaps he only means this as a temporary *faut de mieux* until we have arrived at a better understanding.

[15] Shewmon, "Once," 429.

[16] Shewmon, "Once," 469.

[17] O'Connor, Timothy and Wong, Hong Yu, "Emergent Properties", The Stanford Encyclopedia of Philosophy (Summer 2015 Edition), Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/sum2015/entries/properties-emergent/>.

"individualistically holistic," which is said of individual instances of a property.[18] Suppose a squirrel is maintaining homeostasis, but suppose too that individual cells within the squirrel are maintaining homeostasis. Homeostasis on this supposition would not be a generically holistic property-type; it is predicable both of the whole (the squirrel) and of the parts (its cells). However, the homeostasis *of the squirrel*—that particular instance of homeostasis—is indeed predicable of the squirrel only, and not of any of its parts (they have their own individual instances of homeostasis). Even if the squirrel's cells are themselves maintaining homeostasis, they aren't maintaining *this* homeostasis, i.e., *the squirrel's* homeostasis. With this distinction in hand, I think it's right to say that what Shewmon is interested in, when discussing the status of BDBs, is whether a BDB has a property that is individualistically holistic—i.e., whether there's a particular property of this BDB that is possessed by this BDB and not by its parts; whether its parts also have their own instances of that property-type is a different and, I think, irrelevant question for Shewmon. This will become important later on.

One last distinction that Shewmon makes pretty clearly is the distinction between being *dead* and being *moribund*, i.e., at the point of death or anyway sure to die. Imagine someone who just sustained a massive laceration and is clearly going to bleed out and die (he's backpacking alone and many miles from help). Such a person is dying, is in fact doomed to die. But he's not dead. This distinction, which might seem trivial and even comically not-worth-mentioning, is in fact very important. It's related to the distinction between the constitution of life and the sustaining of life. If I'm bleeding out, but not dead yet, then I've clearly in some crucial sense lost the ability to sustain my life for much longer—I can no longer perform at least one necessary life-sustaining integrative process, namely, keeping my blood where it belongs, viz., inside of me—but if I'm not dead yet, then I've clearly <u>not</u> yet lost the ability, and indeed the actualization thereof, to perform the life-constituting process of resisting entropy. I'm still resisting entropy, although I won't be able to hold out for much longer. I'm dying, but I'm not dead yet.

The next item of discussion is something that Shewmon is definitely not clear enough about. I want to introduce a pair of concepts, which I will call "candidate organism" and "candidate human." But first I need to introduce the concept of a "unified whole."

> Unified whole
> X is a unified whole = X has at least one emergent and individualistically holistic property.
>
> Candidate organism
> X is a candidate organism = X is the sort of thing such that, *if it's a unified whole, then it's a living organism-as-a-whole.*

[18] Sadly, not all philosophers accept the existence of property-instances. There's probably a way to re-express this distinction in a way that is available to those philosophers who've not yet seen the light on this issue.

Candidate human
X is a candidate human = X is the sort of thing such that, *if it's a living organism-as-a-whole, then it's a living human*.

I think these concepts are operative in Shewmon's reasoning, and I think he occasionally gives indications that he has them in mind, but they definitely need spelling out, especially the last two.

Let's start with the idea of a unified whole. If something has a property that's emergent and individualistically holistically, then it's a unified whole. This is a very weak condition, i.e., a condition satisfied by many things. Dogs are unified wholes, but so perhaps are rocks and societies.

Now let's move on to the idea of a candidate organism. A squirrel that you hit with your car just now may or may not be a living organism-as-a-whole, but it's the sort of thing that *could* be a living organism-as-a-whole. If it isn't, that will be because it's no longer a unified whole—it's merely, say, a collection of cells. By contrast, consider a rock that you hit with your car. Even if it's a unified whole, it's not going to be an organism-as-a-whole: it's just not the right kind of thing for that. The rock is not a candidate organism. The squirrel or ex-squirrel that you hit *is* a candidate organism. It's the kind of thing that could be an organism, and whether it actually *is* an organism depends on whether it's a unified whole. And given that it's a candidate organism, that's *all* it depends on. Being a candidate organism + being a unified whole is sufficient for making you a living organism as a whole.

Now let's talk about being a candidate human. Think of a BDB on a hospital bed. It may or may not being a living human. But it's the sort of thing that *could* be a living human. If it isn't, that will be because it's no longer a living organism-as-a-whole—it's just, say, a collection of organs. By contrast, consider a dog. Even if a dog is a living whole, it's not going to be a living human: it's just not the right sort of thing for that. The dog is not a candidate human. The BDB *is* a candidate human. It's the kind of thing that *could* be a living human, and whether it actually *is* a living human depends on whether it's a living organism-as-a-whole. And given that it's a candidate human, that's *all* it depends on. Being a candidate human + being a living organism is sufficient for making you a living human.[19]

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[19] As I mentioned, I don't think Shewmon is nearly explicit enough about these points. I think he doesn't bother much with the distinction between candidate organism and candidate human because he's not considering the possibility that the BDB is a non-human organism—that issue will come up below. I think he does have the notion of a candidate organism, but he doesn't spell it out at all. It's implicit, I believe, embryonically perhaps, in the word "putative" when he says, for instance, " 'Integrative unity' is possessed by a <u>putative</u> organism (i.e., it really *is* an organism) *if it possesses at least one emergent, holistic-level property*" (Shewmon, "Once," 469; "The Brain and Somatic Integration," 460). The italics in that quotation are Shewmon's, and the underscoring is mine. Shewmon isn't saying that *anything* that possesses at least one emergent, holistic-level property is an organism, but rather that any *putative organism* that possesses at least one such property is an organism. I think that what he means by "putative organism"—at any rate, what he needs to mean!—is what I am spelling out as the notion of a candidate organism.

How, by the way, do we know that Shewmon isn't saying that *anything* that possesses an emergent, holistic-level property is an organism? Because he tells us so explicitly ("The Brain and

(Those interested in technical issues in the philosophy of language might find the following interesting. If the squirrel that you hit with your car isn't a whole, then there's no "it" of which we can say that it's not a whole—if the squirrel that you hit isn't a whole, then there's no squirrel of which we can say that it's not a squirrel. So what is the proper interpretation of an expression like "candidate organism" ("candidate squirrel," "candidate human")? I don't think the issue needs to be settled for present purposes, but it's something that will have to be thought through at some point.)

**Shewmon's argumentation**

With all these points in hand, we can begin to lay out Shewmon's reasoning.[20] Letting "Joe" be the name of an imaginary BDB that Shewmon believes is a living human being, consider the following argument.

PHASE ONE

(1) Joe has holistic and emergent properties or functions. (claimed on clinical/empirical grounds)
(2) Joe is a unified whole. (follows from 1 [keeping in mind the definition of unified whole])
(3) Joe is a candidate organism. (claimed on clinical/empirical grounds)
(4) Therefore, Joe is an organism. (follows from 2 and 3 [keeping in mind the definition of candidate organism])

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Somatic Integration," 461), saying that having an emergent, holistic-level property is necessary but not sufficient for being an organism.

On the basis of a remark that Shewmon makes about organisms having membranes, Moschella ("Deconstucting," 9) interprets this latter passage as indicating a belief on Shewmon's part that what's sufficient for being an organism is the conjunction of (a) having an emergent, holistic level property and (b) having a continuous, closed membrane. I disagree. In the passage in question, all that Shewmon is trying to do is to prove that having an emergent, holistic-level property is not sufficient, and the way he does this is by mentioning something that has such a property but that clearly isn't an organism, namely, a society. In driving home the point a society isn't an organism, he points out that societies don't have membranes, but read in its argumentative context, this needn't be anything more than the mention of a second necessary condition of being an organism—the fact that a society lacks a necessary condition is enough to prove Shewmon's point, without his having to take a stand on sufficient conditions for being an organism.

[20] I am not entirely clear on the extent to which I should call all this Shewmon's reasoning and the extent to which I should call it my version of Shewmon's reasoning. I don't think my own contribution is particularly large. Mostly I have clarified things. But I'm not apologizing for "merely" clarifying things. The misunderstandings of Shewmon's position that are out there in the literature seem like good evidence that clarification is required.

PHASE TWO

(5) Joe is a candidate human. (claimed on clinical/empirical grounds)

(6) Joe is a human. (follows from 4 and 5 [keeping in mind the definition of candidate human])

The logical structure of the argument probably doesn't require comment.

Let's begin with (1), which is accepted (by those who accept it) on the basis of clinical and/or empirical grounds. The idea is that if we examine Joe carefully, we'll see that there is at least one property or function that belongs to Joe as a whole. But that means—this leads us now to (2)—that Joe is functioning as one entity, which means that it's a whole. But that, of course, isn't enough to prove that Joe is a human being, nor even that it's an organism. It's just a whole of some kind. It's one being, rather than a bunch of beings interacting together.

Moving on to (3), the idea is that Joe is the sort of thing that, *if* it's unified, is an organism. Joe is neither a kidney nor a dead kidney; if it were, then even if it were unified, it wouldn't be an organism. Likewise, Joe is neither a wine glass nor a shattered wine glass; if it were, then even if it were unified, it wouldn't be an organism. Kidneys and wine-glasses aren't the right sorts of things to be organisms—even if they are unified wholes. But Joe is different. For all (3) says, Joe might not be a unified being at all, but if it is, then it is a unified being of the organism sort. And we know this, if we do, by having observed Joe.[21]

Put (2) and (3) together, while keeping the definition of "candidate organism" in mind, and you get (4). If something is the sort of thing that would be an organism if it were unified, and if it is unified, then it's an organism—i.e., a unified living organism-as-a-whole, albeit (in this case) a severely handicapped one.

It's important to pause a bit here, at the end of Phase One. Shewmon gives a lot of examples of functions or properties that, he thinks, point ultimately to the fact that Joe is a unified living organism. These are the functions or properties mentioned in step (1) of the argument. Leaving for later doubts one might have about the existence or significance of such properties, for now I just want to point out the following interesting fact: many of the properties/functions that Shewmon points to, and indeed perhaps all of them, are not properties/functions in virtue of which Joe is alive. They are not constitutive, but rather sustaining. Let's take the controversial example of wound-healing, and let's leave aside its controversialness so as to focus on something different. Shewmon isn't claiming that the actuality of wound-healing is the actuality of being alive. The actuality of being alive is, again, being a single unified entropy-resister. The actuality of wound-healing—or rather (this is important) the actuality of working as a whole to heal a wound—is an *indication that* the BDB is a living organism. In other words, the fact that the BDB is working as a whole—in this

[21] I think that in the vast majority of cases, perhaps in every case, it's not hard to tell whether a BDB is a candidate organism. The difficult question isn't whether it's a candidate organism but instead whether it's an organism, and the answer to *that* turns on whether it's unified. Nonetheless one might ask for the necessary and sufficient conditions for being a candidate organism. I don't claim to settle that here.

example, to heal a wound—shows that the BDB *is* a whole. But the BDB's *being* a whole consists not in holistic wound-healing but (again) in holistic entropy-resistance.

So that's Phase One of the argument, bringing us to the interim conclusion that Joe is a living organism. Phase Two takes us farther. It begins with (5), the claim that Joe is a candidate human. For all (5) tells us, Joe may not be a living organism, but if it is, then it's a living organism of the human sort. For those who accept it, (5) is supported by observation.[22] Putting (5) together with (4), and keeping in mind the definition of candidate human, we arrive at the final conclusion, that Joe is a living human being. So, to sum it up: Joe exhibits emergent/holistic properties, so therefore it's a whole; it's the sort of thing that is an organism if it's a whole, so therefore it's an organism; and it's the sort of thing that is a human if it's an organism, so therefore it (or shouldn't we now say "he"?) is a human.

## Objections and replies

Now I'd like to consider a series of objections, objections to which I will then set out what I think would be reasonable replies, mostly from Shewmon's point of view.

### Objection 1

Step (1) of the argument points to certain functions that are exhibited by BDBs. But these same functions are exhibited by organs etc. *ex vivo*, which shows that what has these functions isn't *ipso facto* an organism. For all we know, Joe might be a kidney, or a society.[23]

### Ad 1

This isn't an objection to the actual argument. It misses premise (3), that Joe is a candidate organism. The argument isn't that having holistic/emergent properties is enough to make you an organism: you also have to be a candidate organism.

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[22] In parallel to what was said in the previous note, I think it's obvious enough in all or most cases whether a BDB is a candidate human—the difficult question is whether the BDB is a living organism or not. At the same time, one might ask for necessary and sufficient conditions of being a candidate human. Having said all this, I'll now add something that is not parallel to what's in the previous note: some authors (e.g., Grisez and Lee) would deny that it's so obvious whether a BDB is a candidate human. I'll get back to this.

[23] Condic is at pains to emphasize the fact that organs can exhibit these functions *ex vivo*—see Condic, "Determination," 2-3. Now facts are facts, not arguments, so naturally Condic has not just a fact in mind, but an argument. It's not entirely obvious what her argument is, however, in part because she doesn't spell out the precise nature of the Shewmonian argumentation she is objecting to. In theory, her objection might be what I am here formulating as objection 1, but I doubt it. I think that the next objection, objection 2, is closer to what Condic has in mind. But I'm not certain.

For the purposes of this paper, I do accept it as a fact that these functions occur *ex vivo*. But I would be glad to have a clearer understanding of precisely what the purported fact actually is. Presumably there is a difference between the way these functions are carried out by organs *ex vivo* and the way they are carried out by organisms. For all I know, it might be the kind of difference that makes a difference.

**Objection 2**

Step (1) of the argument points to certain functions that are exhibited by BDBs. But these same functions are exhibited by organs etc. *ex vivo*, which shows that what has these functions isn't *ipso facto* an organism. This is true even accepting (3), that Joe is a candidate organism. For all we know, there might not really be a unified Joe here: "Joe" might be a bag of organs, each individually exhibiting these functions (which, as the point about *ex vivo* organs shows, is possible).

**Ad 2**

Again the argument is not being properly understood. The claim is not merely that these functions are going on in the BDB, but that it, the BDB, is performing them, as a whole. What we see is not just *these functions being performed* but *these functions being performed by Joe*.

This is a helpful place for a small speculation about what might be an important contrast between Shewmon and Condic. For ease of exposition, let's assume (as does the second objector) that Joe is a candidate organism. Now, Condic might be thinking that if a function F *can* be performed by a non-organism, then the fact that Joe performs F isn't sufficient for Joe's being an organism, even on the supposition that Joe is a candidate organism. That would mean that for her, the way to show that Joe is an organism would be to show that Joe performs a function that *only* organisms can perform.[24] Shewmon, for his part, clearly holds that constitutive functions can be performed either at the organism level or at the sub-organism level. So his reason for thinking that Joe is an organism can't be merely that a certain function is getting performed <u>in</u> Joe (inside Joe's skin); it has to be instead that that function is being performed <u>by</u> Joe, by Joe-as-a-whole. Now of course it might well be disputed whether the function in Joe's case is in fact being performed by Joe-as-a-whole, or instead just by individual organs within Joe's skin, but from Shewmon's point of view, the mere fact that these functions *could* be performed by individual organs is not a reason for thinking that the functions aren't performed by Joe-as-a-whole. Whether they are or not would, presumably, have to be settled by carefully examining Joe himself to see how the functions are taking place. So, to put this remark in terms of a distinction introduced earlier, Condic's objection might be that the functions Shewmon appeals to are not generically holistic, and Shewmon might reply by granting that they are not but then saying that they don't need to be: what matters is whether they are individualistically holistic.

**Objection 3**

Yes, yes, I understand the claim that the functions are performed by Joe as a whole, but that's just not possible, because they are functions that are performed by organs and organ systems or whatever—*ex vivo*, as has been mentioned more than once already! If they are performed sub-organismically *ex vivo*, then they are <u>always</u> performed sub-organismically,

[24] Perhaps "integration" as she understands it is meant to be something that only an organism can do. But again, this is just speculative interpretation on my part.

even when they are performed in an organism. They can't be performed by the BDB as a whole, because the BDB is a candidate organism, and they're just not the type of functions that get performed at that organismic level.

**Ad 3**: It's not true that if a function is performed at one level, it can be performed only at that level. Think of maintaining homeostasis! And recall the distinction between generically holistic properties and individualistically holistic properties.

**Objection 4**

OK, maybe, I'll grant that these functions could be performed at the organism level, but in the BDB, they are not being performed at the organism level—we know this because they are not performed in the right way. They are examples of coordinated activity but not integrated activity, using the distinction spelled out by Maureen Condic ("Determining," 13-16):

> Integration: The compilation of information from diverse structures and systems to generate a response that 1) is multifaceted, 2) is context dependent, 3) takes into account the condition of the whole and 4) regulates the activity of systems throughout the body for the sake of the continued health and function of the whole. Integration is (by definition) a global response and during postnatal stages of human life, is uniquely accomplished by the nervous system, most especially, the brain.
>
> Coordination: The ability of a stimulus, acting through a specific signaling molecule, to bring responding cells into a common action or condition. Coordination can reflect either 1) a single type of response that occurs simultaneously in multiple cells or 2) a set of synchronous, but cell-type specific responses. Coordination can be local or global and is accomplished both by the brain and by other signaling systems.

These functions do not occur in an integrated way in Joe—Joe does not do these integrating things—so therefore Joe isn't an integrated whole, so therefore Joe's not a human or an organism.

**Ad 4**

As can be seen from the above quotation, integration as Condic describes it is "for the sake of the continued health and function of the whole." That, from Shewmon's point of view, is an example of a life-sustaining function, not an example of a life-constituting function, and in fact, Shewmon is quite happy to grant that many life-sustaining functions require the brain.[25] So Shewmon can grant the whole thing and then just say that it proves only that BDBs are, without a lot of intervention, moribund. For Condic's argument about integration to work, it would have to show that integration is required for *constitutive* functions.

[25] See Shewmon, "Once," starting on 441 and going on for quite some time.

I don't know whether the argument could be made to work in that way. I will, however, make a remark about what that would require. The most powerful version of the argument would *grant* Shewmon's point that life is holistic anti-entropy but then show that humans can't exhibit holistic anti-entropy without "integration" in Condic's special sense. Note that this is *not* the same thing as saying that life *by definition* requires holistic-entropy-resistance-caused-by-integration, i.e., by integration in Condic's special sense. Indeed, what's at issue, at this precise juncture, is precisely whether life does require "integration" in that special sense; for that reason, integration in that sense can't properly be part of the *definition* of life. Well, of course it *can* be made a part of the definition, but then the same problem would just reemerge immediately in the form of the following question: Why believe that "integration" in the special sense is part of the definition of life?

As noted earlier, "integration" for Shewmon appears to mean fitting together as a whole of some sort, somehow, and it is necessary to then narrow the concept by distinguishing kinds of integration, including most importantly the kind of integration in virtue of which something is alive, viz., constitutive integration. Condic, by contrast, uses the word "integration" in a narrow way, to indicate the precise kind of activities described in the quotation above. There is nothing wrong with this, of course, but we must be careful not to let ourselves get confused by similarities of terminology. The fact that the brain is needed for "integration" in Condic's sense does not mean that the brain is needed for "constitutive integration" in the sense at work in Shewmon's argument. Whether the one is needed for the other needs to be shown. Putting it differently, the fact that BDBs aren't "integrated" according to Condic's terminology is not automatically an objection to Shewmon's argument, because Shewmon's argument doesn't turn on integration in Condic's sense.

**Objection 5**

Integration, including constitutive integration, requires an integrator, a master organ—the brain.

**Ad 5**

True constitutive integration, on Shewmon's understanding, doesn't require a master organ. In fact, it can't: if the situation of an organism is that of a large number of parts that are united in their operations only because the brain makes them be so, then they are not truly unified at all. Constitutive unity consists in *all* the parts interacting with each other in a certain way: it is "the anti-entropic mutual interaction of all the cells and tissues of the body."[26] Of course, Shewmon might be wrong, but this is definitely what he would say.

So Moschella, for example, is wrong to say that for Shewmon, humans have a decentralized master part and that he is speaking "hyperbolically" when he says that all parts

[26] "The Brain and Somatic Integration," 472-473. Quotation at 473. And to make a connection with the previous objection: from the fact that Shewmon rejects the need for a master organ, even in the human case, it seems to follow that he would reject the idea that life, even human life, requires "integration" in Condic's special sense.

contribute.[27] Shewmon does not state someone else's view hyperbolically, he states his own view non-hyperbolically:

> [E]ach part of the body, especially the brain, contributes to the stability, robustness, and richness of the body's vitality and unity, but no one part or even combination of parts constitutes that vitality or unity…. A unity that must be "imposed," so to speak, on otherwise non-united parts by some master integrator outside the set of parts is only a pseudo-unity…. Integrat*ion* does not necessarily require an integrat*or*.[28]

To understand Shewmon correctly, it is important not to make the means of integration become part of the definition of integration. Integration means that the cells *do* interact in a certain way. If they do, then they do; whether a brain or any other kind of master organ is needed is a different question. And on Shewmon's understanding, the brain is needed for sustaining life, but not for constituting it.[29]

One more thing: it's an interesting question whether it really *could* be the case that the brain integrates the body. One has to think about what integrates the brain. Does it integrate itself? If so, why can't the whole body (brain included) integrate itself? If the brain does not integrate itself, does something else integrate it? That might lead to an infinite regress.[30] Presumably one has to say that the brain integrates the whole body, itself included, but on

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[27] Moschella, "Integrated but not Whole?", p. 8.

[28] "The brain and somatic integration," 472-3. From Shewmon's point of view, Condic's account in "Determination" might seem to reflect a dangerous tendency to think of cells as borderline independent beings that are always threatening to act on their "intrinsic properties" (7), rogue agents that must be press-ganged into the service of the whole body. From his own point of view, he is not the one in danger of reductionism (see Condic, "Determination," 17 and 17n39); in fact, it's the other way around. Shewmon would, I think, have the same worry about the picture proposed by Moschella in e.g. "Integrated by Not Whole?".

Of course there's no room to settle this here. I'm just trying to underline the stark opposition between two conceptions of somatic unity: on one conception, the cells are always on the brink of living in the state of nature unless the Leviathan brain brings them into the state of civil society (one wonders then what precisely the soul does in all this); on the other conception, the soul is the formal principle in virtue of which *all the cells work with each other* to constitute a unified anti-entropic system (and secondarily, especially by means of the brain, to sustain the life thus constituted).

For a discussion of Aristotelian/Thomistic ideas above primary organs, see Spencer, "Reexamination," which argues that for Aristotle/Thomas, a primary organ is needed for motion, not life itself—in Shewmon's categories, for sustaining functions but not constitutive functions.

[29] When Moschella argues ("Integrated but Not Whole?", 6-7) that Shewmon's claims about the importance of the brain undermine his position, she misses the point that he is stressing the importance of the brain for sustaining life, not for constituting it. When he says that the brain regulates functions, he doesn't mean it regulates functions of otherwise-independent cells; he means that it regulates functions happening in an already-living organism. Similar remarks apply to the analogy of the orchestra (p. 10): a conductor *regulates* music so as to make it better, but it's not as if there is no music at all without the conductor.

[30] See Accad, "Of Wholes and Parts," 222.

the Hobbesian understanding of integration discussed in note 28 of this paper, I'm not sure that would make sense. This is a difficult question.

**Objection 6**
BDBs usually experience heart failure and decay within a few days, so therefore they're already dead.[31]

**Ad 6**
This evidence does not actually prove that the BDB is already dead: for all this argument shows, the BDB is not yet dead, it's just dying fairly fast (but not so fast as the injured hiker mentioned earlier). The very poor prognosis of the average BDB proves that it's moribund or dying, not that it's dead. Once again we are back to the distinction between constitutive and sustaining: what certain BDBs lack, on Shewmon's account, is robust life-sustaining integration, but not constitutive integration.

Or maybe the great majority of BDBs are indeed dead (see note 3 of this paper), but some (the ones that avoid asystole for a long time, and exhibit certain holistic functions) are not.

**Objection 7a**
I'll grant you the distinction between moribund and dead, but BDBs aren't moribund in the usual sense. They have lost the radical capacity to sustain their own lives internally, and this is decisive: to quote Moschella, "to be self-integrated, an organism must *control* and *direct* its essential vital functions."[32] A non-self-integrated organism is no organism at all. So they actually aren't moribund—they are dead.

**Ad 7a**
Shewmon would no doubt point to the distinction between constitutive and sustaining functions. The operations that Moschella says an organism must direct on its own are life-*sustaining* operations, not life-*constituting* operations, which means that lacking them makes not dead but moribund.

**Objection 7b**
Congratulations, you just defeated the weakest possible version of the argument. The stronger version is this: the operations that need to be self-directed *aren't* just life-sustaining

[31] See, for example Condic, "Determination," 17: "Despite aggressive life support, the great majority of brain dead bodies suffer irreversible cessation of cardiopulmonary function within seven days." Shewmon raises this type of argument, and replies to it in the way that I'm about to, at Shewmon, "Once," 446-7, and in other places too.

[32] Moschella, "Deconstructing," 12.

operations. They are also life-constituting operations, as can be illustrated by Moschella's discussion of how a lung can survive *ex vivo*.[33]

**Ad 7b**

From Shewmon's point of view, that's still the same mistake—just in a more subtle form. What happens to the lung *ex vivo* is that it is provided with oxygen and nutrients and so on. But the lung *itself* performs the processing of the oxygen and nutrients. And likewise with the BDB: for example, the ventilator supplies oxygen, but the ventilator doesn't itself engage in the anti-entropic processes of metabolism—the BDB does this for itself, and only it can. So just because a lung *ex vivo*, or a BDB, needs external support doesn't mean that it isn't itself performing its main vital operation. It's pathetically in need of help in living, but it still itself executes the actual living

This constitutive function is, in principle, completely unsubstitutable, Shewmon insists.[34] Moschella argues that certain things evidently *are* substitutable, but the things she's pointing to aren't constitutive, they're sustaining, surprising as that may sound. Even ventilation is sustaining—without it, the BDB will die in minutes, but that's not the same as being already dead.

**Objection 8a**

OK, I see what you mean about constituting vs. sustaining, but this is all a distraction from Moschella's *real* point. Let's grant that nothing external is substituting for the BDB's performance of the constitutive operations—let's grant that the BDB is itself, as a whole, resisting entropy.[35] That's not the issue. The issue is control and direction (the words italicized in the very quotation given above!). The problem with the BDB is not that it isn't performing its own constitutive operations—let's grant that it is performing them. The problem is rather that it doesn't have control over them and direct them. We can see this from the fact that it requires external prodding to carry out the operations—in this case, ventilation.[36]

**Ad 8a**

Why believe that *control and direction* is needed? And what is *control and direction*? (Or what are *they*?)

Moschella herself doesn't actually give us reasons for believing that control and direction are needed—at least not as far as I can see. At the top of "Deconstructing," p. 12,

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[33] Moschella, "Deconstructing," 11.

[34] Shewmon, "Once," 439f.

[35] It's not clear that Moschella would actually accept that the BDB is itself, as a whole, resisting entropy—in "Deconstructing," 12-14, she keeps re-describing what Shewmon would call a live BDB as a collection of (merely coordinated) organs and so on. But that, if taken as a given in the discussion, would beg the question by presupposing that the BDB *isn't* an organism. So, to interpret her argument in the strongest possible form, it seems best to have that argument *grant* that the BDB acts as a whole to resist entropy and then go on to say that *nonetheless* it isn't an organism.

[36] See "Deconstructing," 13n15, where Moschella says that the ventilator supplies a "constant, repeated impulse."

after specifying the need for the ability to control and direct one's own essential vital operations, she asks, "Why is this specification necessary?" In the paragraph immediately following, she makes a point that can be summed up as follows: self-direction is sufficient for life. But that doesn't even tend to show that self-direction is necessary for life. In the paragraphs that follow, she asserts that control is needed without giving any reasons for believing this to be so. Maybe I'm missing something.

I myself don't really find the control/direction requirement very compelling. Perhaps to some extent that's because I find it rather unclear. Once the BDB receives the oxygen via the ventilator, doesn't it "control" what it does with that oxygen? Anyway, back to basics: if to live is to resist entropy, and if the BDB works as a single entropy-resistance unit, then it *is living*, because *that's what living is*. It may not be able to *control* whether oxygen is available to fuel that entropy-resistance, but that would mean only that it's moribund.[37]

**Objection 8b**

Actually, the argument isn't that you need to exercise control—it's rather just that you need the *radical material capacity for* exercising that control.

**Ad 8b**

This can't be right. Objection 8a was actually stronger than this. Being alive can't possibly be a matter of *having* a capacity. It's a matter of *exercising* a capacity. (Something that is alive can have a sustaining capacity that it doesn't exercise, but if something doesn't exercise a constitutive capacity, then that "something" isn't alive at all, and nothing has that capacity. There is no unexercised constitutive capacity.[38])

**Joint comment on objection 8a and 8b**

The control-and-direction requirement is either *actual* control-and-direction or the *capacity for* control-and-direction. The capacity interpretation cannot be right, for reasons just given: being alive isn't a capacity, it's the exercise of a capacity. So we should prefer the actuality interpretation. But that means something strange: people who are temporarily not controlling the relevant functions are, perhaps temporarily, not alive. If someone is put on a ventilator for a time and then later comes back off it to make a full recovery, that person has died and came back to life. Compare: perhaps we are on a long car trip and I become tired,

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[37] See Spencer, "Reexamination," 866-867: "[A]n organism is alive when its soul is animating its body, that is, when the organism is self-moved or self-actualized in some way. Thus some activity of the body must be able to be attributed to an internal source; there must be some activity of the whole organism that cannot be entirely explained in terms of external forces, such as the operations of a machine…. In this case [sc. a patient on a ventilator etc.], many spontaneous integrative activities of the whole organism… continue; the soul continues to implement its powers through the body's organs. …. It seems then that the soul can continue to inform the body even when it has ceased to be the motor of the primary organ if another motive power source is provided." This is a way of thinking about how the organism could still be acting as a whole, even when what Moschella calls "direction and control" come from an external agent.

[38] Or maybe there is: in a separated soul.

so I ask you to drive for a while. During my break, I retain the radical capacity for driving. But during my break, *I'm not driving*. In this analogy, driving is like controlling the operations of a living organism, and having a break while someone else drives is like temporarily being on a ventilator—allowing a machine to perform those directing and controlling operations for a while. By analogy, then, if being alive means directing and controlling, then someone who is temporarily not directing and controlling is someone who is temporarily not alive. The fact that this person (?) retains the radical capacity is not at all relevant. I find this a *reductio* of the direction-and-control requirement, but of course one man's *modus tollens* is another man's *modus ponens*.

**Objection 9**

OK, fine, it's a single anti-entropy system at the organism level. It's a living organism. But it's not human, because it lacks the radical capacity for thought and even sentience—so it's not really even an animal.[39] Putting this in terms of the Shewmonian argument spelled out above, the false step is (5), and we should resist the transition from Phase One to Phase Two. The BDB used to be human, but it isn't anymore. Call this Early-Onset Dehominization.

**Ad 9**

This argument can be responded to in a number of ways, some Shewmonian and some not.

First, it's very hard to see how the argument doesn't lead to the view that mere higher-brain death is human death. If the lack of the capacity for sentience means you aren't an animal, won't the lack of the capacity for rational thought mean you aren't a *human* animal?[40] Of course, some people do hold that higher-brain death is human death, but I do not, and so I think that unless it's shown how this implication can be avoided, we have here a *reductio ad absurdum* of the idea proposed by Grisez and Lee.[41]

Second, everyone in this debate, or anyway all the Aristotelian-Thomists, accept the idea that death is a substantial change, but notice that it's usually thought of in the obvious way as a substantial change that involves going from <u>one</u> organism to a <u>multiplicity</u> of cells or organs. On the Grisez-Lee proposal, death is sometimes a transition from <u>one</u> human organism to <u>one</u> non-human organism. I think it's very weird to think that substantial changes happen this way. True, Aquinas holds that that's how the genesis of the human being takes place *in utero*, but guys, he died in, like, the middle ages or something.

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[39] See for example Patrick Lee, "Total Brain Death and the Integration of the Body Required of a Human Being." There seems to be a similarity between this way of thinking and Moschella's idea that an organism that lacks certain capacities *ipso facto* lacks the right kind of unity—see "Integrated But Not Whole?," starting on p. 10.

[40] Lee points out that loss of the higher brain need not lead to loss of consciousness, but I'm not talking about consciousness here, I'm talking about rationality. See Lee, "Total Brain Death and the Integration of the Body Required of a Human Being," 17.

[41] Eberl raises doubts about how easily this consequence can be avoided; cf. Eberl, "A Thomistic Defense of Whole-Brain Death," 241, including nn 18 and 19.

Third, I think we should not be so confident that the brainless actually do lack those powers. Lee says that powers like sensation belong to the soul-body composite, not to the soul.[42] There's some truth in this, but more needs to be said. Consider his claim that "one does not retain a capacity to walk after one loses one's legs." In one sense, of course this is true, but in another sense, I think it is not. Someone could have legs transplanted and thereby recover the capacity to walk. That shows that, in a different way, they already had the capacity to walk. Consider what would happen if legs were transplanted onto a snake; could it then learn to walk? I think the answer would be no. Snake souls do not have a locomotive power that is suited for the use of legs, and for that reason, a snake soul doesn't "know what to do" with legs. A human soul, by contrast, does "know what to do" with legs. So while in one sense both a legless human and snake "lack the capacity to walk," in another sense the human still has that capacity. Capacities come nested, in a series of levels. Someone who is trapped under a large rock is "unable to walk"; so is someone whose legs are temporarily anesthetized; so is someone whose legs are paralyzed; so is someone who has no legs; so is a snake; but these indicate increasing degrees of incapacity, and only the last is absolute. So I think that there's an important sense in which a legless human *does* have the capacity to walk, even if it is a remote capacity.

In a parallel way, then, we should not be so sure that the brainless lack the radical capacity to sense or think. If, by some futuristic kind of transplant surgery, new brain matter were transplanted into the skull of the brain dead person, it's at least theoretically possible that the soul could begin to animate and humanize that new brain matter. This would be like the case of someone who has no kidney, but receives one in a transplant: the fact that they are able to acquire renal function shows, as nothing else could, that they already did have the radical capacity to exercise these functions.

## A conclusion of sorts

I think that the question of brain death is a very difficult one. I do lean in Shewmon's direction: his arguments seem powerful to me (even if they need improvement), and replies to them often do not really address them very well. But many obscurities remain. To end where I began, I hope the intellectual community will move slowly. It's not easy to know whether BDBs are really dead, and that's true in no small part because many of the relevant notions—death, life, integration, control, capacity, soul, and so on—are very difficult to understand. To paraphrase Karl Valentin, "Philosophie ist schön, macht aber viel Arbeit."

[42] Lee, "Total Brain Death and the Integration of the Body Required of a Human Being," 9-10; the quotation in the next sentence is from p. 10.

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