

The Metaphysics of Brain Death

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Abstract

The dominant conception of brain death as the death of the whole brain constitutes an unstable compromise between the view that a person ceases to exist when she irreversibly loses the capacity for consciousness and the view that a human organism dies only when it ceases to function in an integrated way. I argue that no single criterion of death captures the importance we attribute both to the loss of the capacity for consciousness and to the loss of functioning of the organism as a whole. This is because the person or self is one thing and the human organism is another. We require a separate account of death for each. Only if we systematically distinguish between persons and human organisms will we be able to provide plausible accounts both of the conditions of our ceasing to exist and of when it is that we begin to exist. This paper, in short, argues for a form of mind-body dualism and draws out some of its implications for various practical moral problems.

Advancing knowledge of the functions of different areas of the brain, together with recent innovations in brain imaging techniques, has now made it possible to know with reasonable certainty that certain comas are irreversible. Even as recently as a few decades ago, however, this knowledge was not available and doctors were obliged to assume that recovery from coma was possible until the cessation of cardiac and pulmonary functions assured that it was not. It had to be assumed, in other words, that the irreversible cessation of brain functions, and in particular the loss of the brain's capacity to support consciousness and mental activity, coincided with the irreversible cessation of cardiac and pulmonary functions. But along with advances in our understanding of the brain came new technologies for sustaining cardiopulmonary functions and together these made it possible in many cases for heart and lung functions to continue after the point at which one could be confident that the capacity for consciousness had been lost and indeed after clinical criteria indicated that the whole brain had irreversibly ceased to function.

This alone might not have been sufficient to motivate the shift from the traditional criterion of death as the irreversible cessation of cardiac and respiratory functions to the now dominant view that death consists in the death of the whole brain. But social and moral factors also contributed to the pressure to reassess our understanding of death. Patients in whom all possibility of consciousness had been lost were increasingly being sustained for lengthy periods at considerable cost in terms of the consumption of scarce medical resources, though without apparent benefit to the patients themselves. And the indefinite support of patients in this condition also meant that other patients who might have been saved by

organ transplantation instead died for want of donors. The concept of brain death provided a ground for distinguishing among the former patients in such a way that at least some of them could be declared dead and thus be disconnected from expensive life-support systems without doctors having to fear legal liability, thereby also freeing the patients's organs for use in transplant operations. These concerns were explicitly acknowledged as important factors leading to the adoption of brain death as the criterion of death in the influential report of the group that became known as the Harvard Brain Death Committee.⁹

But, even though these social and moral concerns created incentives for revising our understanding of death, one may still wonder why we settled so readily on what I will call “the dominant conception of brain death”—that is, the death of the whole brain (or, in Britain, the death of the brain stem, which at present is an immediate and infallible precursor of the death of the whole brain)—as the criterion of death. In what follows I will offer an explanation of why the dominant conception of brain death has seemed so attractive but will argue that this appeal is specious. I will suggest that no single conception of death can satisfy the requirements that the dominant conception of brain death has been supposed to satisfy. To meet these requirements, we need to distinguish two concepts of death: the death of the person, or self, and the death of the physical organism. I will propose and defend a particular conception of the former and will conclude by drawing out some of its implications for various practical moral problems.

I. The Dominant Conception of Brain Death

Much of the intuitive force of the idea that a person dies when her entire brain, or even just her brain stem, dies derives from the fact that both these conditions involve the irreversible loss of the capacity of consciousness and mental activity. For it is intuitively plausible to suppose that the capacity for subjectivity, for consciousness and mental activity, is essential to our existence—in other words, that one cannot exist without at least the capacity for consciousness or mental activity of some sort. Thus, writing about the historical development of the notion of brain death, one scholar has commented that he has “little doubt that the impact of loss of consciousness on acceptance of brain death has been considerable.”¹⁰

If, however, one were to identify the death of a person with the person's loss of the capacity for consciousness, then it would be a mistake to insist that the death of the whole brain, or even of the brain stem, is necessary for a diagnosis of brain death. For there are other conditions involving considerably less destruction of the brain that nevertheless cause

9 The Ad Hoc Committee of the Harvard Medical School, “A Definition of Irreversible Coma,” reprinted in Gorovitz 1983: 419–24. For discussion, see Singer 1994, chapter 2.

10 McCullagh 1993: 15.

the irreversible loss of the capacity for consciousness. One of these is *cerebral death*, which has been defined as the “irreversible destruction of both cerebral hemispheres exclusive of the brain stem and cerebellum.”¹¹ Another is *neocortical death*, which involves “the destruction of cortical neurons bilaterally while deep structures of the cerebral hemispheres such as the thalamus and basal ganglia may be intact along with the brain stem and cerebellum.”¹² Individuals who have suffered cerebral or neocortical death are commonly said to be in a *persistent vegetative state*. In many cases, a persistent vegetative state may persist only as a result of mechanical life-support; in other cases, however, the survival and continued functioning of the brain stem is sufficient to ensure the continuation of spontaneous respiratory and thus cardiac function even in the absence of the capacity for consciousness. But, if the capacity for consciousness were essential for our existence, then cerebral death or even, apparently, neocortical death would be sufficient for the patient’s ceasing to exist.

There are various explanations of why the death of the whole brain was adopted as the definition of death for clinical and legal purposes in preference to either cerebral or neocortical death. One appeals to the practical difficulty—more serious in the past than now, though still formidable in many cases—of determining when the damage to the cerebral hemispheres or cortical neurons is sufficiently extensive to preclude any possibility of consciousness. In short, a case might be made for the dominant conception on purely practical grounds: namely, that it is only when the entire brain is dead that we can be fully confident that all capacity for consciousness has been lost.

But any complete explanation of the appeal of the dominant conception will also have to take account of the perceived requirement that a criterion of death should serve as a plausible marker of the biological death of the human organism as a whole. Thus advocates of the dominant conception of brain death have contended that brain death is equivalent to the death of the organism by arguing, for example, that the brain is the irreplaceable “master control” that regulates and integrates the functions of the various parts of the organism.¹³ Since the human organism can spontaneously maintain respiratory, cardiac, and other functions indefinitely after cerebral or neocortical death, these latter conditions have seemed less plausible as criteria for the death of the organism.

It has become increasingly evident, however, that even the death of the entire brain is not equivalent to the biological death of the human organism. We have, it seems, a unitary conception of death as the loss of those properties necessary and sufficient for a being to be *alive*, a *living* being. In the case of organisms (as opposed, say, to organs), death, or the loss of life, is generally held to consist in the irreversible cessation of integrated functioning by

11 Korein (1978: 7); quoted in Gervais 1986: 10–11.

12 Korein (1978: 8); quoted in Gervais 1986: 11.

13 See Lamb 1985, chapter 4, especially p. 37. For discussion, see McCullagh 1993: 13–20.

the organism as a whole. (This definition is probably insufficiently specific to be quite right; but the precise details are unnecessary for our purposes.) This general characterization of biological death says nothing about the brain, which is unsurprising given that most living organisms do not have brains. And even in the case of those that do, the brain is only one of the organism's many organs and thus cannot be identical with the organism itself. Hence it would be surprising if the death of the brain were one and the same thing as the death of the organism.

In the case of the human organism, it is clear that the death of the whole brain is neither necessary nor sufficient for the death of the organism—that is, for the cessation of integrated functioning of the system as a whole. Suppose that a living, functioning human brain were surgically extracted from the body and then kept alive for a certain period, either by being suspended in a tank of fluid or by being transplanted into the skull of a different human organism. The brains of nonhuman animals have been removed and kept briefly alive in both of these ways and it seems in principle possible that a human brain could be kept alive and indeed conscious even when severed from its source of sensory inputs. But, if this is in principle possible, then brain death is not necessary for the death of the organism, since in this case the organism could clearly die even though its brain would continue to live. (The organism would of course be “brain dead” according to clinical indicators, but in this case that would not show that the brain itself was dead.) This shows that brain death is not necessary for the death of the human organism.

Nor is the death of the whole brain sufficient for the death of the human organism. While it is true that a human organism, left to its own devices, will very quickly cease to function when the whole of its brain dies, it has long been known that mechanical ventilation can enable a human organism to maintain functional integrity for a certain time beyond the death of the whole brain. While until recently it was widely believed that this interval during which functions could be artificially sustained was measured only in hours or days, it is now well established that mechanical ventilation can sustain cardiac and other functions in a human organism for well over three months following a reliable diagnosis of brain death. In some cases, the bodies of pregnant women diagnosed as brain dead have been sustained in this way for several months in order to allow the fetus to mature.¹⁴ In those cases in which the fetus was nourished and sustained for several months in its mother's mechanically ventilated body and then delivered alive by caesarian section, it seems implausible to say that it was incubated in a corpse. If an organism can circulate blood, metabolize food, and perform its other characteristic functions with sufficient efficiency to support the growth of a fetus, that seems evidence enough that it is functioning in an integrated manner.

¹⁴ See McCullagh 1993: 35–39, and Singer 1994, chapter 1.

The defender of the dominant conception of brain death may reply that, as was noted earlier, it is part of the point of the criterion of brain death to distinguish between patients who remain alive and those who are dead and whose bodily functions can therefore be maintained only artificially and temporarily. Yet it is important to notice that, in functional terms, the difference between the body of a pregnant woman in a persistent vegetative state and the mechanically ventilated body of a pregnant woman who has been diagnosed as brain dead is that, in the latter case, respiration is artificially induced while it may occur spontaneously in the former. But is the fact that an array of seemingly vital functions are triggered artificially rather than spontaneously of decisive biological significance in determining whether an organism is dead? Certainly there are cases in which it is not—for example, cases in which a lesion on the respiratory center in the brain stem prevents spontaneous respiration in persons in whom other brain functions, including cognition, remain unimpaired. Even though these persons have to be sustained by mechanical ventilation, no one is tempted to declare them dead.¹⁵ We might, indeed, imagine a case in which an individual in a persistent vegetative state (i.e., an individual who has suffered cerebral or neocortical death) whose respiration has until now been spontaneous develops a lesion on the respiratory center of the brain stem and thus comes to require mechanical ventilation. This individual would not be brain dead according to the dominant conception, since much of the brain stem would remain alive and functional. But now compare this individual with another whose entire brain has died but whose various bodily functions are maintained by mechanical ventilation. Neither organism is capable of supporting consciousness or mental activity and neither is capable of spontaneous respiratory function (nor, therefore, any other spontaneous vital functions), though both continue to carry out a vast range of functions characteristic of living human organisms. The difference is that there is some residual brain stem activity in one but not in the other. This is an insufficient basis for the claim that the one organism is alive while the other is dead.¹⁶

There is, in fact, an easier way to think about this. The claim that a human organism cannot be alive unless at least some of its functions are regulated by the action of its brain implies that human embryos are not alive. For the vital processes of an early human embryo are not only not governed by its brain but are also crucially dependent on life-support from the body of the pregnant woman in whose womb it is located. Yet human embryos are clearly living human organisms. This shows that a human organism can be alive even when it altogether lacks brain functions and when its vital functions cannot be sustained independently of external support.

¹⁵ See Gervais 1986: 33.

¹⁶ One of the referees for the journal, Daniel Wikler, has called my attention to the fact that a similar example appears in his work (1993: 243).

I therefore conclude, as many others have done, that the death of the whole brain is not equivalent to the death of the human organism. The dominant conception of brain death is an unstable compromise between those views that make the irreversible loss of the capacity for consciousness the criterion for human death and those that insist that the death of a human being, like the death of any other organism, consists in the irreversible loss of functional integrity by the organism. Some critics had concluded that we must either accept that it is the loss of the capacity for consciousness that is decisive and thus embrace cerebral or neocortical death as the criterion of death or else focus on the biological characteristics of the organism and accept a broader criterion of death that is applicable even to organisms that lack brains.¹⁷ I believe that this is a mistake. I will argue that, while the irreversible cessation of integrated functioning by the human organism is indeed death, cerebral death is also death. They are both valid criteria of death, though each is a criterion of the death of a different thing.

II. Persons and Organisms

Much of the confusion in the debate about brain death arises from the failure to understand, or even to consider, the nature of the relation that we bear to our physical organisms. I should confess at the outset that I do not myself understand the nature of this relation. Where I differ from many participants in the debate is that I explicitly base my account of brain death on the claim that the relation is *not identity*. I have an organism, I exist in association with it, am intimately related to it in ways that are hard to explain; but I am not identical with it. The same is true of all other members of my kind; indeed it is true of all beings that possess the capacity for consciousness and mental activity. None of these is identical with its physical organism.

There are various arguments for the claim that we are not identical with our organisms (or, as I will say, that we are not organisms). I will mention two. First, the idea that we are identical with our organisms has implausible implications about when we begin to exist and when we cease to exist. For it implies that we begin to exist and cease to exist when our organisms do. Thus, if we assume that my organism began to exist at the time of its conception, then we must accept that I began to exist at conception. (Two qualifications are necessary. First, conception is not a momentary event but is instead a process lasting about 24 hours. It is arguable that the human organism does not begin to exist at least until syngamy, the point at which the genetic materials from the sperm and egg have fused.¹⁸ Second, some human organisms do not begin to exist until well after syngamy. In the case

17 See, for example, Gervais 1986: 160 and elsewhere.

18 See Buckle, Dawson and Singer 1989.

of monozygotic twinning, a single zygote divides within fourteen days of conception to form two qualitatively identical embryos. Since it cannot be the case that both subsequent embryos are identical with the original zygote, and since it seems arbitrary to say that one of the subsequent embryos is identical with the original zygote while the other is not, it seems reasonable to conclude that the original zygote ceases to exist when it splits and that two new embryos, and thus two new organisms, begin to exist at that point. If this is right, then identical twins have organisms that began to exist slightly later in the process of gestation than those of the rest of us. This also suggests an objection to the idea that we are organisms. For, if we are organisms, then one of us ceases to exist whenever monozygotic twinning occurs. If it is bad when one of us ceases to exist, thereby losing the whole of a life that would have been worth living, then twinning is bad. But no one believes this.¹⁹)

Many of us, however, find it hard to believe that we began to exist at conception. Surely, we think, *I* could never exist as a thing so humble as a single cell! To appreciate the force of this doubt, imagine that the process of human biological development were reversed in some of us. We would begin to grow younger, in physical terms. Eventually some of us would revert to being babies. These people would soon have to be placed in artificial uteruses in order to survive. As their brains reverted to the infantile and fetal stages of their development, their mental lives would become increasingly rudimentary and would eventually disappear altogether when their brains ceased to be capable of supporting consciousness. Suppose now that one were to face this prospect. When during the process of biological regression would one cease to exist? Would one survive to the very end of the process, when one's organism would have reverted to a single-celled entity?

If we are identical with our organisms, then not only do we begin to exist when they do but we do not cease to exist until they do. This means that in most cases we do indeed survive death, since in most cases our organisms do not cease to exist when they die but instead continue to exist as corpses. According to this view, therefore, most of us survive death as corpses. Again, however, this is not what most of us believe. Unless we believe that we are immortal souls, we accept that the death of a person's organism is a sufficient condition of the person's ceasing to exist, even if the organism continues to exist as a corpse.

There are two ways in which those who believe that we are organisms can attempt to salvage their view without being committed to accepting that we can exist as corpses. One is to hold that, when a human organism dies, it ceases to exist. That is, one might hold that the living organism and the corpse are not one and the same thing. The corpse is not a phase in the history of a body that was once alive; rather, it is a different substance altogether, one that

19 There is a lot that could be said in response to this argument but it is not worth pursuing here.

pops into existence upon the death of the organism. I assume, however, that this is even less plausible than the idea that we may continue to exist after death as corpses.²⁰

The other way of attempting to reconcile the view that we are organisms with the view that we do not survive death as corpses is to claim that we are essentially *functional* organisms. In that case one would cease to exist when one's organism ceased to function—that is, to be alive. It is not clear, however, whether this view is really coherent. If there really is some thing that ceases to exist when the organism ceases to function, then that thing is not identical with the organism, since the organism continues to exist. The alternative is to suppose that we really are not things, or substances, at all, but are just phases in the histories of our organisms. But in that case there is no thing that ceases to exist when the organism ceases to function.

Even if the metaphysics of this last view could be made coherent, the view would still succumb to the second main argument against the view that we are organisms. This argument appeals to a thought-experiment involving a brain transplant.²¹ Suppose that the entire brain of a person, P, is transplanted into the body of his identical twin brother, whose brain was irreparably damaged and has been removed. Suppose that surgical techniques have advanced well beyond what is now considered possible and that all the connections between P's brain and the nerve pathways in his twin's body can be established. Following the operation, a person is brought to consciousness. He has P's memories, beliefs, and dispositions of character. He believes himself to be P. But he has the body of P's brother. Most of us believe that this person is P. On another operating table in the room lies the organism from which P's brain was removed. Perhaps it has been left decerebrate and thus has died; or it may have received a brain stem transplant, in which case it might be alive, though lacking the capacity for consciousness; or it might have received a whole brain transplant so that it is now "inhabited" by a new person. The point is that, although it may have been mutilated or altered in various ways, it clearly remains P's organism (or, more precisely, it remains the same thing as that which was his organism, since he now has a new organism). But if P is lying on one table babbling amazedly about finding himself

²⁰ For discussion, see Carter 1984.

²¹ Other authors have appealed to this thought-experiment to show that, as Mark Johnston puts it, we are not "essentially human organisms." See Johnston 1987: 75–76. More recently I have found a briefer version of the same argument in Lockwood 1988: 200. While working on this paper I have read certain papers, or in some cases reread papers about which I had forgotten, which I have discovered together contain many of the elements of my overall argument, which itself is drawn from work done years ago on a manuscript entitled *Killing at the Margins of Life*. [Later published, under a slightly different title, as McMahan 2002. Eds.] If this paper has a virtue, therefore, it is not novelty but the fact that it synthesizes scattered elements from different areas of metaphysics and moral theory into a single coherent conception of brain death and personal identity.

with a different body while his organism lies on a different table, he is not now identical with his organism. And if he is not now identical with his organism, then he never was identical with it. For a thing cannot cease to be itself and yet continue to exist.²²

As I noted, this second argument also disposes of the suggestion that we are functional organisms. For in this case P survives while his organism ceases to function. Hence P is not a functional organism.

If I am not identical with my organism, then there are two things here: I am here and this organism is also here. I seem to share a great many properties with it. But, if I am not identical with it, then I can have properties that it does not have and *vice versa*. Most importantly for our purposes, while my organism and I may cease to exist simultaneously (for example, if a nuclear bomb lands on me), it is possible that I may cease to exist at one time while it will cease to exist at another. This, as I have indicated, is in fact what many of us believe: that I will very likely cease to exist when my organism dies while it may continue to exist until it disintegrates as a result of the process of decay.

Normally, the ceasing to exist of a person coincides with the biological death of his or her organism. But, not only is it possible for the person to cease to exist before the organism ceases to exist, it is also possible for the person to cease to exist before the organism dies. And it is in principle possible for the organism to die and perhaps even to cease to exist before the person ceases to exist. This happens, for example, in the variant of the brain-transplant case cited above in which P continues to exist in association with a new body while his decerebrate organism is left to die.

Since it is not necessarily the case that we cease to exist either when our organisms die or when they cease to exist, the fact that a person's organism can be kept alive after his whole brain has died or ceased to function does not show that the dominant conception of brain death is not death. It shows only that brain death is not equivalent to the death of the organism. Thus the fact that the death of my whole brain and the death of my organism are not one and the same thing is compatible with the claim that *my death is* equivalent to the death of my whole brain.

III. Personal Identity

It is *possible* that my death is equivalent to the death of my whole brain; but is it *really*? How can one tell? One must begin by clarifying what one means by "my death." Some commentators have claimed that "[d]eath is a biological concept. Thus in a literal sense, death can

²² This claim has been challenged by George Myro, who argues that identity statements are implicitly temporally indexed, so that one might be identical with one's organism at one time but not another. He attempts to work out the logic of a temporally indexed concept of identity in Myro 1986: 383–409.

be applied directly only to biological organisms and not to persons. We do not object to the phrase ‘death of a person’; but the phrase in common usage actually means the death of the organism which was the person.”²³ The authors of this passage claim that their understanding of the notion of death is faithful to “our ordinary use of the term.”²⁴ But the idea that we are not identical with our organisms is not a wild new idea that requires a departure from ordinary ways of speaking. Anyone who is skeptical of the idea that we begin to exist at conception, or of the idea that most people continue to exist after death as corpses, believes that it is a coherent possibility that we are not identical with our organisms. Therefore ordinary language should have the resources to enable us to articulate the distinction between *my* ceasing to exist and the death of my organism. And it is, in fact, entirely natural to say that when I cease to exist I die, even if I am not an organism. The only alternative, if we deny that I am identical with my organism, is to say that I cease to exist without dying. But since, when I will cease to exist, I clearly will not be alive, this alternative seems to commit us to the view that I am not now alive—for, if I will *cease* to be alive when I cease to exist, then that seems a sufficient ground for saying that I will have died. It is, I concede, possible to argue that, if I am not an organism, then I am not a biological entity and thus essentially biological predicates such as “alive” and “dead” cannot apply to me. But that is clearly inconsistent with ordinary language.

It seems, therefore, that we must distinguish two concepts of death, both of which, I believe, are found in ordinary language. One is the concept of the biological death of a living being—an organism or perhaps an organ, a piece of tissue, or a cell. It is in this sense that an organism dies when it irreversibly loses the capacity for integrated functioning. The other is the concept of the death of the conscious or potentially conscious being whose existence is supported by the functioning of the organism. *My* death will be a death of this second sort and will consist in my ceasing to exist, which may or may not coincide with the biological death of my organism.

What are the essential conditions of my death, or ceasing to exist? Would the death of my whole brain be equivalent to, or a necessary and sufficient condition of, my death? To answer these questions with confidence, one requires an account of personal identity—that is, an account of what is necessarily involved in our continuing to exist. What is required is not a *de dicto* account of what is necessarily involved in being or continuing to exist as a *person*. For we might (as I in fact believe) be persons only contingently—that is, we may be able to exist while not being persons. Instead, what is required is an account of the conditions for the existence of things of our kind, whatever kind of thing we essentially are.

²³ Culver and Gert 1982: 183. Their view is echoed by David Lamb, who writes that “the concept of ‘death’ can only be applied to organisms, not persons.” See Lamb 1985: 93.

²⁴ Culver and Gert 1982: 181.

In this section I will sketch what I think is the best account of personal identity. While it is not possible here to present the arguments for the account, or to indicate its advantages over rival accounts, I have attempted to provide a defense elsewhere.²⁵

This account of personal identity captures the intuition that I have suggested was among the considerations that motivated the shift to the current understanding of death as brain death—namely, the intuition that the capacity for consciousness and mental activity is essential to our existence. This intuition is, I believe, best articulated by the claim that each of us is essentially a mind. This, of course, requires elucidation. What is a mind? And how is it related to the brain?

Unfortunately, it is easier to say what the mind is not than to be confident about what exactly it is. It is, for example, generally recognized that the mind is not a Cartesian nonmaterial substance with identity conditions independent to those of the brain.²⁶ Nor is it simply a collection of causally related mental states. For, if each of us is a substance and each is essentially a mind, then minds are substances, at least in whatever sense in which it is true that you and I are substances. So the mind should not be identified simply with its particular contents. Nor can we say simply that the mind is the brain. For, when the entire brain dies, that is certainly sufficient for the ceasing to exist of the mind but not, in the normal case, of the ceasing to exist of the brain. A dead, nonfunctional brain is still a brain. Finally, it also does not seem quite right to say that the mind is just the brain (or even certain parts of the brain) in certain functional states. For, again, when the brain altogether stops working, the mind no longer exists. But is there anything in the brain that ceases to exist rather than merely ceasing to function? Perhaps this temptation to reify the mind is just a feature of the way we talk that is without deep significance. Yet many of the other things that we regard as substances in their own right bear a similar sort of relation to the physical matter in which they are realized. We believe, for example, that a statue is a substance that is distinct from—i.e., not identical to—the lump of bronze of which it is composed, so that the statue may cease to exist when the lump of bronze merely undergoes a certain change (for example, when it is melted).

Although my sympathies lie with “dual aspect” theories of the mind and mental states, I am reluctant (because incompetent) to issue pronouncements about the precise nature of the relation between the mind and the brain.²⁷ But I suspect that it is not necessary, for present purposes, to commit oneself to a particular position on the mind-brain problem. For the essential point is one that the adherents of most rival schools of thought—property dualists,

25 In Chapter III of *Killing at the Margins of Life*. Other arguments for accounts that are extremely close to that which I defend may be found in Nagel 1986: 37–43, and Johnston 1987.

26 This view is effectively criticized in Parfit 1986, sections 81 and 82.

27 A dual aspect theory is defended in Nagel 1986, chapter 3.

dual aspect theorists, functionalists, and even materialists who would prefer to drop the word “mind” from their vocabularies—can agree on. This is that what in ordinary language is called the mind is *either* generated by or identical with the states and operations of the brain and hence cannot be tracked or traced independently of the brain. Assuming, then, that we are minds, my continuing to exist must consist in the continued existence of my (i.e., this) mind. And, since the continued existence of my mind is a matter of the continued existence and functioning of my brain, it follows that my continued existence necessarily consists in the continued existence and functioning of my brain.²⁸

This, however, is insufficiently specific. We need to know how much of the brain and, more particularly, which areas of the brain must survive and remain functional in order for one and the same mind to continue to exist. As a first approximation, we can say that enough of the brain must survive in order to retain the capacity for supporting consciousness and mental activity. The emphasis here is on capacity. Consider a mind that has been sustained by the operations of a particular brain. If the brain were injured in such a way that it became dormant or inactive, in the sense that it ceased to generate conscious or even unconscious mental activity, the same mind would nevertheless continue to exist provided that the brain retained the capacity to generate consciousness and mental activity. This would be true for two reasons. First, the possibility of restoring consciousness to the brain just is the possibility of reviving or reactivating the same mind. The regeneration of consciousness would, in other words, count as the emergence or recovery of the person from the coma. Thus, unless we think of the existence of the mind as in this case discontinuous, the mind must continue to exist in a dormant state during the interval between periods of past and future, or potential future, activity. Second, elements of the mind would in fact persist throughout the period of coma in the form of unconscious mental states. Assuming that the micro-organization of certain parts of the brain were preserved, the neurological bases for particular memories, desires, and so on would remain intact. So, for example, during the period of coma it would remain true that the individual continued to believe certain things, to have certain desires, and so on, albeit unconsciously.²⁹

The claim that the retention by the brain of the capacity to generate consciousness and mental activity is necessary and sufficient for the continued existence of the mind is, as I noted, only a first approximation. It requires clarification and refinement. For there are cases in which there is a clear sense in which the brain loses the capacity to support consciousness and mental activity while the individual mind nevertheless survives. There is an area of the

28 Most theories of personal identity, such as that advanced by Derek Parfit, that deny that one’s continuing to exist *necessarily* consists in the continued existence and functioning of one’s brain accept that one’s continued existence *in fact* consists in or depends on the continued functioning of one’s brain. See Parfit 1986, Part III.

29 For a plausible analysis of the nature of unconscious mental states, see Searle 1992, chapter 7.

brain, located primarily in the brain stem, called the *ascending reticular activating system* or, less clumsily, the “reticular formation.” If this system is damaged, for example by a lesion, coma ensues; consciousness and mental activity cease to occur. Since, given the current state of medical technology, it is not possible to restore the functions of the system by healing such a lesion or by replacing the damaged system, either with transplanted tissue or a mechanical replacement, there is a clear sense in which an individual whose reticular formation is damaged thereby loses the capacity for consciousness and mental activity. And the loss is, in practice, irreversible. Does this mean that the mind associated with the individual’s brain has ceased to exist?

I believe that it does not. The reticular formation seems to function like an on-off switch. Without it, consciousness is not possible. But, when it functions, it does not appear to affect or contribute to the contents of the mind. The locus of consciousness and mental activity, the area in which consciousness and mental activity occur or are generated, is the upper brain—specifically, certain areas of the cerebral hemispheres. It is here that the neurological correlates of the actual or potential contents of consciousness are located. This, in short, is the area of the brain in which mental states, and thus the mind itself, are realized. The reticular formation, by contrast, is an essential support system for the parts of the brain where mentation occurs but its tissues are not tissues in which the mind or any of its elements are realized. Because of this, it is possible for those areas of the brain in which the mind is realized to remain intact and potentially functional even when the reticular formation is nonfunctional. In this case, while there is a sense in which the cerebral hemispheres retain the capacity for consciousness, there is another sense in which the brain as a whole lacks this capacity. I think the best way to understand what happens in this case is to say that the mind survives even though it cannot be activated.

A familiar distinction between two types of capacity is relevant here. In the case just cited, the parts of the brain that once directly produced consciousness and mental activity remain intact and potentially functional. Because of this, the brain *in principle* retains the capacity to generate consciousness and mental activity. There *is* something that would count as reviving this same mind although at present we lack the knowledge or technical means necessary to bring it about. Because the lack of capacity is contingent rather than necessary, we say that *in practice* the brain lacks the capacity for supporting consciousness and mental activity. If, by contrast, the tissues of the cerebral hemispheres were destroyed, the brain would necessarily or in principle lack the capacity to support consciousness. Replacement of the tissues through the transplantation of new hemispheres might make consciousness possible, but this would not count as reviving the same mind, even if the new hemispheres were perfect duplicates of those that had been destroyed. There would instead be a new and different mind.

Would there also be a new and different brain? Probably so; but this would not be necessary for there to be a new mind. It is tempting to say that for there to be a different mind there must be a different brain, since the continued functioning of one and the same brain is sufficient for the continued existence of one and the same mind. But we must recall that the mind appears to be realized only in certain parts of the brain. Thus what we need to say is that the continued functioning of *those parts* of the brain is sufficient for the continued existence of the same mind. But it is conceivable that one and the same brain could in principle survive the replacement of those parts. This would be suggested if, for example, a brain could *lose* those parts and yet continue to exist as the same brain. But, if a brain could survive the replacement of those parts by functional substitutes, then after the replacement that brain would support the existence of a different mind from that which it supported before.

There are, in summary, two different types of irreversible coma, each corresponding to one of the two forms of incapacity. A coma that leaves the cerebral hemispheres largely intact—e.g., one induced by a lesion on the reticular formation—is in practice irreversible though in principle reversible. By contrast, a coma caused by the destruction of the cerebral hemispheres or the neocortex is in principle irreversible. Since the areas of the brain in which the mind was previously realized have been destroyed, the revival of that same mind is necessarily impossible.

These observations about the notions of capacity and irreversibility have implications for the debate about brain death. It is not uncommon for those advocating a revisionist conception of brain death (such as cerebral death or neocortical death) to assert that “death is the irreversible loss of the capacity for consciousness.”³⁰ Let us assume that this is proposed as a definition of the death of the person or self—that is, according to the view proposed here, as a definition of the ceasing to exist of the mind—and not as a definition of the biological death of the human organism. It is still inadequate if “irreversible loss of the capacity for consciousness” is intended to cover cases in which the absence of capacity is traceable to the malfunctioning of some support system such as the reticular formation rather than to the destruction of the locus of consciousness—that is, cases in which the irreversibility of the loss of capacity is contingent rather than necessary.

We must therefore refine our understanding of what is necessarily involved in the continuing to exist of the mind. Retention of the brain’s capacity in practice to sustain consciousness and mental activity is not necessary for the survival of the mind. What is necessary is instead the survival, in a potentially functional state, of those areas or tissues of the brain that directly generate consciousness and mental activity—i.e., those areas in which the mind is realized. In short, the continued existence of the mind, and thus of the self, consists in the

³⁰ Dr. Robert Troug, quoted in Singer 1994: 42.

survival of enough of the cerebral hemispheres to be capable in principle, or in conjunction with relevant support mechanisms, of generating consciousness and mental activity.

This account of self- or personal identity is still imprecise. Various qualifications may be necessary in order to deal with challenges posed, for example, by science-fiction cases involving the grafting of neural tissues from one brain to another. But these refinements are unnecessary for present purposes.

I have been assuming—and this seems, on all the available evidence, to be correct—that most or all of the particular elements of an individual's mental life are realized in the upper brain. Our knowledge of the brain is, however, still rudimentary and it is possible that we will discover that the brain stem contributes to the character and content of an individual's mental life in various ways. In that case, we might have to think of the mind as being realized in part in the brain stem. We can distinguish several possibilities. First, it might be that the brain stem can actually support consciousness or mental activity on its own, even in the absence of a functional upper brain. This is of course most improbable. But if it turned out to be the case, then the mind could survive even if the organism were in a persistent vegetative state. It is very unlikely, however, that such a life could be worth living. If indeed an individual in a persistent vegetative state were actually conscious at some level, it is more likely that his or her life would be worse than no life at all. There might, in short, be positive reason not to prolong such an individual's life, provided of course that the coma were clearly irreversible.

Second, a somewhat more realistic possibility is that, although the brain stem is in principle incapable of generating consciousness on its own, certain particular mental states are nevertheless directly realized in its tissues—that is, the neurological bases for certain conscious states might be located there. In that case, it might be true that certain unconscious mental states could survive in the brain stem even after the hemispheres had died. We should, however, consider whether, if unconscious mental states were to survive in the brain stem following the death of the hemispheres, they would be in principle as well as in practice inaccessible to consciousness. Would they together constitute a mind, albeit an unconscious one? These are difficult issues that would need to be resolved in order, for example, to determine the plausibility of the revisionist conceptions of brain death; but they cannot be addressed here. One point is, however, worth noting. If elements of our mental lives are realized in the brain stem, then the brain stem might not, as I have been assuming, be in principle replaceable. A brain stem transplant would not, for example, involve merely the replacement of a support system for the mind. Rather, elements of one mind would be fused with those of another and it might be unclear, and perhaps indeterminate, whether either of the original minds would

survive at all.³¹ This would depend on how many or what proportion of the constitutive elements of the mind were realized in the brain stem.

A third and final possibility is that the brain stem contributes in subtle ways to the character of the contents of the mind. It might, for example, modulate the emotional hue of certain experiences or memories. This, in fact, appears to be the likeliest of the three possibilities. But, if the brain stem contributes only marginally to the contents or character of the mind, then it does not seem that the continued existence and functioning of the brain stem is in principle (though of course it is in practice) necessary for the continued existence of the same mind.

Next, it is important to distinguish the account of personal identity I am developing from a related and influential view. I have argued that those areas of the brain whose survival and functional integrity are essential to the continued existence of the mind are the areas in which the elements of mental life are realized. This insistence on the preservation of the neurological bases of mental life may suggest that my account holds that it is necessary for an individual's survival that some proportion of the neurological bases of *the particular contents and continuities* of his or her mental life be preserved. This is in fact the view of a number of those who have written about personal identity. For example, in their seminal and important paper on personal identity and brain death, Michael B. Green and Daniel Wikler claim that "the ordinary causal processes which link events in a personal history involve more than spatio-temporal continuity of brain tissue. They also require continuity of certain brain *processes*, carried out through microstructural and microfunctional registrations in the brain tissue. Two body-stages which fail to be linked by continuity of these processes will fail to be stages of the same person, even if identity of the brain is preserved." They then elucidate this claim by noting that the relevant processes are those that "normally underlie that person's psychological continuity and connectedness."³²

One might interpret this as meaning that some degree of psychological continuity is required for individual survival. This interpretation is, however, repudiated by Green

³¹ For related discussion of the possibility of "fusing" different persons, see Parfit 1986, sections 100 and 101.

³² Green and Wikler 1980: 125–26 and 127. Emphasis in the original. Green and Wikler (1980: 119, note 27) credit the writings of John Perry as the source of their view. What appears to be the same view is advanced by Michael Lockwood (1984, especially p. 23) and in Lockwood 1988, especially p. 206, where he claims that an individual cannot survive "too radical a *discontinuity* of organisation in the parts of [his or her brain] that subserved mental functioning," even if the brain were to continue to support consciousness and mental activity. A further statement of essentially the same view appears in Parfit's *Reasons and Persons*, p. 207, labeled as the *Narrow Psychological Criterion*. A possible difference is that Parfit is explicit in requiring a strong form of psychological continuity for the preservation of identity.

and Wikler.³³ Their claim is not that psychological continuity itself is necessary for an individual's survival, but rather that what is necessary is the integrity of those neurological processes that in the normal case underlie psychological continuity. It is not clear, however, whether there is a significant distinction here. For how could there be continuity of the relevant processes without psychological continuity? Green and Wikler cite a case in which "Jones is hypnotized and made to think, feel, and otherwise resemble Smith in all mental respects."³⁴ This, one assumes, is intended to be a case in which the relevant brain processes are preserved while psychological continuity is not. But, if Jones's original memories, dispositions, and so on remain configured in the tissues of his brain, then this is not in fact a case in which psychological continuity is lost. For the contents of Jones's original mental life are preserved. They are, admittedly, present only in an unconscious form, but that is true of most of the elements of our mental lives at any given time. It seems, in short, that the preservation of the relevant processes is sufficient for psychological continuity; if so, and if the preservation of the processes is necessary for survival, then the preservation of psychological continuity is necessary as well.

Let us, however, focus on the brain processes themselves. While it is compatible with a person's survival that a certain proportion of these brain processes, or patterns of neural organization, should be disrupted or destroyed, there is also, on this view, some degree of loss that the person could not survive. Thus Green and Wikler claim that, if a person's brain were "unwired" in such a way that the neural bases of the various elements of her particular mental life were reconfigured, thereby rendering the mental life generated by the brain radically discontinuous, the person would cease to exist. This could be true, on their view, even if her brain continued to support consciousness and mental activity.³⁵

The implausibility of this view can be seen by considering actual cases in which the causal processes or patterns of organization that underlie psychological continuity are severely disrupted. In the case of a patient with Alzheimer's Disease, for example, the "processes ... which normally underlie that person's psychological continuity and connectedness" are gradually destroyed. Yet the capacity of the patient's brain to sustain consciousness and rudimentary mental activity may persist well beyond the point at which the loss of neural organization has become so great that, on Green and Wikler's view, the patient will have ceased to exist. The idea that the patient ceases to exist at this point is implausible, for two reasons.

33 In Wikler's comments on the original draft of this paper.

34 Green and Wikler 1980: 126, note 36.

35 Green and Wikler 1980: 125. Compare Lockwood 1988: 206.

First, the view that the patient survives at least until he irreversibly loses consciousness is intuitively quite compelling.³⁶ If, for example, a person in the early stages of Alzheimer's Disease knew that in the later stages, after virtually all of his memories, beliefs, and so on had been eliminated, his body would be subjected to terrible physical trauma without the possibility of anesthesia, we believe that it would be rational for him now to feel at least some fear of that future pain. On Green and Wikler's view, by contrast, it would be irrational for him to fear the future pain, at least for egoistic reasons, since he will have ceased to exist by the time the pain occurs.

The second reason why Green and Wikler's view is implausible in this case is that it implies that, at the point at which the destruction of the neural states and processes that underlie psychological continuity advances so far that the patient ceases to exist, a *new* subject of consciousness must begin to exist in association with the patient's body. For, in this case, even after the neural basis of psychological continuity has been destroyed, the brain continues to generate consciousness and mental activity. If this is not the mind of the original patient, then it must be a new mind that has popped into existence simultaneously with the death or ceasing to exist of the original patient.³⁷ The only other alternative, it seems, is to say that, although the original *person or self* ceases to exist when the relevant processes are disrupted, his *mind* nevertheless continues to exist and becomes the mind of a new individual who has supplanted him in his body. There would, in short, be two distinct individuals not overlapping in time but sharing the same mind. Since this latter possibility is doubtfully coherent, I assume that the former offers the best account that Green and Wikler's view can give of what happens in cases of advanced dementia.

For these reasons, I reject the commonly accepted requirement that the preservation of the neurological bases of some degree of psychological continuity is necessary for personal identity or for the survival of the same mind. The continued existence of one and the same mind requires the preservation of various mental powers or capacities in the areas of the brain in which consciousness and mental activity occur, but not the preservation of the particular contents of the mind—that is, the various particular mental states configured in the tissues of the cerebral hemispheres.

36 An alternative and perhaps equally plausible view is that the patient ceases to exist gradually, by degrees, as her brain and mind disintegrate. This view, however, requires the revision of various traditional assumptions and concepts—for example, the assumption that existence is all-or-nothing and cannot be partial, that there is no intermediate state between existence and nonexistence. For the beginnings of a defense of the view that existence is not all-or-nothing, see Quinn 1984, section II.

37 Parfit's view, which makes psychological continuity itself the criterion of personal identity, also has this implication.

There is one final detail of this account of personal identity that should be noted. It arises from consideration of certain science fiction examples that are frequently discussed in the literature on personal identity. Imagine, first, that one's cerebral hemispheres could be surgically detached from one's brain stem and then attached to the waiting brain stem in another organism from which the hemispheres had been removed. Assuming that the brain stem is just a support system for the parts of the brain in which the mind is realized, most of us intuitively accept that this is a case in which one would continue to exist in a new organism. Next imagine a case in which one of one's cerebral hemispheres is destroyed while the other is transplanted into a new body from which the hemispheres have been removed. On reflection, most of us believe that this too is a case in which one would survive in a new body. For we know that it is possible to survive the loss of a single hemisphere: this happens both when a hemispherectomy is performed and in some instances in which a stroke kills an entire hemisphere. Thus, if one could survive in a new body if both of one's hemispheres were transplanted into it, then one could also survive in that body if only one of one's hemispheres were transplanted into it. But now imagine a third case in which one's hemispheres are detached from one's brain stem, separated from each other, and separately transplanted into different bodies from which the hemispheres have been removed but in each of which the waiting brain stem is alive and functional. This third case is relevantly like the second except that there are two single-hemisphere transplants rather than one. If the original individual survives in the second case, what happens in the third?

Call the person whose brain is divided A and the two persons who wake up following the operation, each of whom has one of A's hemispheres, B and C. It cannot be the case that both B and C are identical with A, for that would imply that B and C are identical with each other. And it is arbitrary to say that either B or C is A while the other is an entirely new individual. We should therefore conclude that neither B nor C is A. A has ceased to exist.

This is Derek Parfit's response to this case.³⁸ Parfit's insight is that what this case shows is that identity is not the basis for egoistic concern about the future. Rather, the ground for concern about oneself in the future is whatever relation is constitutive of identity in the normal case. But it is possible that this relation may obtain when identity does not. When this is the case, it can be rational to have a concern that is relevantly like egoistic concern though it is for the future of someone who will not be oneself. (I will refer to this as "egoistic concern," with the stipulation that this concern need not be for *oneself*.) Thus, while A should recognize that he will not *be* either B or C, he has as much reason to care about what will happen to each of them as he would have to be concerned about his own future if the operation were not going to occur and he were going to survive in the normal way. For the basis for egoistic concern is surely preserved in his relations to both B and C. This is shown by the fact that the relation

38 Parfit 1986, chapter 12.

he bears to both B and C would have been sufficient to make him identical with either one *had the other not existed*. And in either case—that is, if either B or C had existed but not the other—it would clearly have been rational for A to be egoistically concerned about the single-hemisphered person he would have become. In the actual case, the presence of C makes it implausible to say that A *is* B, but surely the mere presence of C does not affect whether it is rational for A to be egoistically concerned about B.

The claim that it is not identity but the relation that is constitutive of identity that provides the basis for egoistic concern is of profound significance for understanding individual self-interest. Again I follow Parfit in thinking that, if it is the relation that is constitutive of identity that is the basis for egoistic concern about the future, and if this relation may be present to a greater or lesser degree, then the strength of one's present interests in future events or states of affairs may vary with the degree to which this relation holds between oneself now and oneself in the future. This, however, is a different topic.³⁹ Where my account of personal identity diverges from Parfit's is in its understanding of what the relevant relation is. I have contended that what is constitutive of one's identity over time is the continued existence of enough of the cerebral hemispheres to be capable, in conjunction with relevant support mechanisms, such as those in the brain stem, of generating consciousness and mental activity. What the case involving the separate transplantation of both hemispheres shows, however, is that the presence of this relation is not always sufficient for *identity*. For, as this case shows, the relation may, at least in principle, take a "branching" form. When it does, the resulting minds cannot be identical with the original, since they are not identical with one another. The criterion of personal *identity* must therefore be the survival, *in nonbranching form*, of enough of the cerebral hemispheres to be capable, in conjunction with relevant support mechanisms, of generating consciousness and mental activity. Call this the *Continuity of Mind* account of personal identity.

The case involving branching, which reveals the need for this final qualification in the account, is drawn from science fiction. But there may be certain "real life" instances of branching—cases in which alterations in the structure of the brain may possibly result in more than one center of consciousness and thus, perhaps, more than one mind. Possible examples here include "split brain" patients in whom the connecting tissues between the cerebral hemispheres have been surgically severed and psychiatric patients with multiple personality disorder. These cases raise important questions about how many distinct minds, and therefore how many individual persons, a single brain is capable of supporting.⁴⁰ While it is important for the Continuity of Mind account to have a criterion for individuating minds at a single time as well as a criterion for tracking a single mind over time, I will not pursue

39 For a fuller discussion of these issues, see Parfit 1986, chapters 12–15.

40 See, for example, Wilkes 1988, chapters 4 and 5.

the former problem here since it is not relevant to the practical concerns that have prompted the debate about brain death. If, for example, a split brain patient suffers a stroke that kills an entire hemisphere, there is a genuine issue about whether a mind, and therefore a person, has died or ceased to exist. And a similar problem is raised by “cures” of multiple personality disorder that succeed by eliminating all but one of the personalities. But, as long as at least one mind is left behind in these cases, there is no question of declaring anyone dead for legal or medical purposes.

IV. Some Objections and Problems

Like all views in this area, the Continuity of Mind account of personal identity is vulnerable to a variety of objections. Many people will object, for example, that it reintroduces a variant of a thoroughly discredited dualistic metaphysic. For, although it rejects Cartesian dualism, which conceives of the mind as a substance with identity conditions that are entirely distinct from those of the brain or body, it nevertheless holds that, wherever one of us is, there are in fact two substances there: the mind, or self, and the organism. It therefore embraces a form of mind-body dualism.

It is worth stressing that mind-*body* dualism need not entail mind-*brain* dualism. The mind might not be distinct from the brain and yet be distinct from the body as a whole, since brain and body are obviously not identical. Yet I do not wish to rule out the idea that the mind is a substance that, while dependent for its existence on the operations of the brain, is not reducible to the brain. There are, therefore, two puzzling relations here: the relation of the mind to the brain and the relation of the mind to the body (i.e., the relation of the self to the organism). My focus will be on the latter, which is puzzling enough. For it seems contrary to educated scientific common sense to suppose that I am a substance distinct from my body. This view may seem, in the old phrase, to multiply entities without necessity.

It is not, however, unusual to find two distinct substances existing in the same location. Recall the earlier example of the bronze statue. There are, it seems, two things there: the statue and the lump of bronze of which it is made. These two things are intimately related but are not identical. The relation that one bears to one’s body might be analogous to the relation that the statue bears to the bronze.

One response to this suggestion is to say that the statue is not really a substance at all. It has no independent existence but is just a phase in the history of the lump of bronze. If this is the case, then nothing goes out of existence when the lump is melted; it merely changes from a statue to an amorphous shape. This response, however, implicitly denies the independent existence of many things that we take to be substances: tables, cars, and so on. Even the lump of bronze is threatened. If I cut the lump in half, there will no longer be a lump but the collection of molecules of which it was composed will continue to exist. One might conclude

that the lump was never really a substance but was just a phase in the history of the collection of molecules, one form that the collection took for a certain time.

Let us assume, then, that the statue and the lump of bronze are distinct substances. It may seem that, despite their distinctness, they share a range of properties: each has the same shape, same weight, and so on. Is this true in the case of a person and his organism? If it is, then this is the basis of a slightly different objection to the Continuity of Mind account (or, rather, to all views that deny that we are identical with our organisms) that has been pressed by W.R. Carter. Suppose that, just as the statue and the lump of bronze are both the same color, I and my organism are both now conscious. That means there are now two conscious entities sitting in my chair, both of which are experiencing a toothache. But “how many toothaches are in question in such a case? Those of us who believe that there is only one toothache in the works, and who also believe that different beings do not (ordinarily at least) feel the same toothache, will say that we *are* our organisms.”⁴¹

It seems to me that the appropriate response to this objection is to deny that my organism is conscious—indeed, that it has any psychological properties at all. For, if the various psychological predicates that apply to me also apply to my organism, so that it is now self-conscious, experiencing the pain of a toothache, thinking about philosophy, and so on, then it would seem that it must itself *be* a person. And if it is a person, then either that person is me, in which case I am identical with my organism, or it is not me, in which case there are two persons here, which is absurd. Since the Continuity of Mind account denies that I am identical with my organism, it must, it seems, accept that our application of psychological predicates to organisms is only a *façon de parler*. We say, for example, that my body is hungry or feels pain, but this must be interpreted as a figurative way of expressing the observation that *I* am in these states.

There are two objections to this response. One has been advanced by Carter. “There is reason to think,” he writes, “that ‘higher forms’ of animal life can and do feel pain (hunger, fear, etc.) and so reason to think that a variety of physical organisms are in some sense *conscious* beings. Surely there is no plausibility to the thesis that non-human organisms are conscious beings and human organisms are not.”⁴² What this shows, I think, is not that psychological predicates must apply to human organisms but that they do not apply to any organisms. Wherever there is a conscious being, a being with a mind, that being is distinct from its organism. While it makes no sense to distinguish between a plant and its organism, or an amoeba and its organism, it always makes sense to distinguish between a conscious subject and its organism. Suppose, for example, that I have a Golden Retriever called Rufus whose brain is transplanted from his own body into that of another Golden Retriever. I believe that

41 Carter 1982: 94. Emphasis in the original. Also see Carter 1980: 63.

42 Carter 1982: 94.

the Golden Retriever that now has Rufus's brain—the one that jumps up and licks me when he sees me, responds when I call the name “Rufus,” and so on—is Rufus. Thus Rufus is not now and never was identical with his original organism. Although there is a temptation to assume that nonhuman animals are identical with their organisms and that we therefore employ a bodily continuity criterion for tracking them through time, this example suggests that this is a mistaken assumption and that the Continuity of Mind account applies to most animals as well as to persons—that is, to all conscious or potentially conscious beings. This, I believe, is a virtue of the account (one that is not shared by a number of other accounts).

The second objection to the idea that psychological predicates do not apply to organisms but only to the minds that animate organisms is that this suggests that the situation is symmetrical with respect to the attribution of an organism's physical properties to the conscious being whose organism it is. If, for example, my mind does not occupy all of the space that my organism occupies and I am my mind and not my organism, then it seems that I do not occupy all of the space my organism occupies. Similarly, although my organism weighs 150 pounds, I may weigh considerably less than that, if I weigh anything at all. In short, the objection is that the Continuity of Mind account, and indeed any other account of personal identity that denies that we are identical with our organisms, seems to commit us to a conception of the organism as what Warren Quinn has called a “subentity.” Quinn writes that, “[s]o conceived, it is our body that digests, that converts nourishment to protoplasm, that sweats, that jerks when struck in certain ways, and *we* (human beings) are seen to metabolize, jerk, sweat, or even simply to occupy physical space only because our bodies do. According to this conception, we supervene upon, contain, or bear some other exotic relation to a distinguishable source of activities which then become attributable to us by a kind of logical courtesy.”⁴³

It seems to me that, if we reject the idea that we are identical with our organisms, then we may have to accept both that mere organisms do not have psychological properties and that at least some of the properties of our physical organisms are not, strictly speaking, attributable to us. We can go on speaking in the normal ways but only with the understanding that the predication of psychological properties to organisms and the predication of certain of the properties of organisms to the minds that animate them constitute natural but nevertheless figurative uses of language. Acknowledging this may, in fact, help us to achieve greater clarity in our understanding of death. Earlier I distinguished two concepts of death: the death of the self and the death of the human organism. Distinguishing the properties of organisms from those of the minds that animate them helps us to see that the two concepts of death correspond to two concepts of life. There is life in the biological sense, which is what our organisms have when they are functioning in an integrated way. And we too are alive, though

43 Quinn 1984: 28–29.

in an extended or perhaps derivative sense. To say that a person is alive is just to say that she exists—for which, as things stand at present, it is a necessary but not sufficient condition that her organism be biologically alive. An organism dies when it ceases to be alive in the biological sense. A person dies when he or she ceases to exist.

Other writers have, of course, distinguished between different senses or understandings of “life.” James Rachels, for example, distinguishes between *being alive*, which involves only life in the biological sense, and *having a life*, which involves life “in the biographical sense” and requires a conscious subject.⁴⁴ Rachels, however, believes that in the normal case both types of life, biological and biographical, can be predicated of one and the same thing: the individual self. Thus he also believes that there are cases—for example, cases of persistent vegetative state—in which a person ceases to have a life in the biographical sense but does not die because he remains alive in the biological sense. His distinction is therefore quite different from the one I have drawn. In my view, only the organism has biological life and only the self has a biography. Thus most of the cases that Rachels says involve an individual’s remaining alive only in the biological sense are in my view cases in which the self or conscious subject dies (and thus has no life of any sort) while his or her organism continues to live. (This is not to deny that there are cases in which an individual ceases to have a biographical life in Rachels’s sense and yet remains alive. Cases in which a persistent vegetative state results from damage to the reticular formation are cases of this sort.)

All this is, of course, quite odd, and is difficult to accept with equanimity. One is reluctant to become committed to these results. Hence virtually all of those who have claimed that some form of brain death is the death of the person though not necessarily of the organism have nevertheless failed explicitly to embrace any form of mind-body dualism. Yet attempts to articulate the idea that the death of the person is compatible with the continued life of the organism that fail openly to acknowledge that there are two nonidentical substances—the person (or mind or self) and the organism—tend to result in incoherence. Green and Wikler, for example, begin by stipulating that they will use the term “patient” “neutrally to designate the entity in the hospital bed.” They then sketch a case in which the patient “entered the hospital as Jones” but in which “the patient ceases to be Jones when brain death strips the body of its psychological traits.” After this happens, however, the “living patient” is still there, for “brain-dead patients can nevertheless be alive.”⁴⁵ This, I think, is their way of saying that the person, Jones, ceases to exist when brain death occurs even though his organism continues to live.

What they actually say, however, is different—and doubtfully coherent. The references to the patient’s ceasing to be Jones suggest that there is only one entity or substance here:

44 Rachels 1986: 5–6 and 24–27.

45 Green and Wikler 1980: 118.

the patient, who is Jones for a while but then ceases to be Jones. The dualistic metaphysic is thus happily avoided. But, if the patient is a substance and can cease to be Jones, then Jones cannot be a substance. To say that the patient can cease to be Jones must be like saying that the patient can cease to be an adolescent or a squash player. The adolescent and the squash player are not substances in their own rights; they are just phases in the life of a single substance—the patient. Hence there is nothing that dies or ceases to exist (except perhaps metaphorically) when the patient ceases to be an adolescent or a squash player. Similarly, if the patient can cease to be Jones, Jones must be simply a phase in the career of the patient. Since Jones is not a substance, nothing dies or ceases to exist when the patient ceases to be Jones. Hence, if brain death simply causes the patient to cease to be Jones, then brain death is not the death of anything.

Green and Wikler, however, clearly need for brain death to be the death or ceasing to exist of some thing. If that thing is Jones, then Jones is a substance. But the patient must also be a substance; for it cannot be just a phase in the history of Jones if it can continue to exist as “the entity in the hospital bed” after Jones has ceased to be. If, however, there is only one substance, then Jones and the patient must be identical. But then the patient cannot cease to be Jones and continue to exist. Either the idea that the patient ceases to be Jones is literally nonsense or it means that Jones, and hence the patient, ceases to exist (since Jones and the patient are identical).

The only interpretation that is compatible with the idea that Jones dies or ceases to exist while the patient continues to live is that Jones and the patient are both substances but are not identical. In short, there are two substances: Jones and the patient or, in other words, the person (or self or mind) and the organism. The dualistic metaphysic, with its attendant problems in accommodating the assumption that physical properties of our organisms are attributable to us, seems unavoidable.

I will note just one further challenge to the Continuity of Mind account.⁴⁶ This account of personal identity, along with most others, is premised on the rejection of the idea that we are identical with our physical organisms. These theories therefore face the challenge of specifying the precise nature of the relation that we do bear to our organisms. One suggestion is that our organisms stand to us in the relation that logicians call “constitution.” This view has been elaborated by Sydney Shoemaker as follows:

[O]ne can allow that there is a sense of “is” in which a person is an animal. But this will not be the “is” of predication or of identity; it will be, perhaps, the sort of “is” we have in “The statue is a hunk of bronze”—it will mean something like “is composed of

46 I address other objections—for example, those advanced in the appendix to Parfit’s *Reasons and Persons* entitled “Nagel’s Brain”—in *Killing at the Margins of Life*, chapter 3.

the very same stuff as.” Arguably, the statue and the hunk of bronze are not one and the same thing, since if the hunk of bronze were hammered into another statue, the statue we had originally would no longer exist, but the hunk of bronze would still be there. So two things, the statue and the hunk of bronze, can occupy the same place and share the same matter and the same non-historical properties.... The suggestion is that a person “is” an animal, not in the sense of being identical to one, but in the sense of sharing its matter with one.⁴⁷

This is an appealing proposal, but it is not without problems. One problem arises from the assumption that, if a person is his organism, where “is” here is the “is of constitution” explained by Shoemaker, then the person and his organism will share the same non-historical properties. This, at any rate, is what is suggested by the analogy with the statue and the lump of bronze. But, if my organism shares my psychological properties—e.g., if it is conscious, hungry, experiencing the pain of a toothache—then we are back to our earlier problem that this implies that there are two distinct conscious beings now sitting in my chair, which is absurd.

There is, in fact, a problem with this solution even as it applies to the case of the statue and the lump of bronze. If the lump of bronze has all the non-historical properties of the statue—e.g., the same shape, size, weight, and so on—then why is it not *itself* a statue? How can it have all the properties that make a thing a statue without *being* a statue? But, if it is a statue, then how many statues are there?

While the analogy with the statue and the lump of bronze is suggestive, the relation that the one bears to the other may not be quite like that between a person, or mind, and his or her organism. The latter relation may, indeed, be *sui generis*, unlike any other relation. In any case, the appeal to the relation of constitution does not seem to solve our problem. To my knowledge, no one who denies that we are identical with our organisms has been able adequately to explain what exactly the relation is if not identity. Although this is not a decisive objection to the Continuity of Mind account, since it does not show that a solution cannot be found, it is nevertheless a serious challenge.

V. Some Implications

Rejection of the Dominant Conception of Brain Death

When those parts of the brain in which consciousness and mental activity are realized are destroyed or rendered irreversibly nonfunctional, the mind ceases to exist—that is, the person dies. To the best of our knowledge, the relevant parts of the brain are all in the cerebral

⁴⁷ Shoemaker 1984: 113.

hemispheres. Hence cerebral death—the death or destruction of the cerebral hemispheres—is sufficient for the death of the person. Neocortical death is presumably also sufficient, though there is perhaps some room for doubt about whether all capacity for consciousness is lost while some areas of the hemispheres remain intact and functional. Lacking sufficient knowledge about these matters, I will remain agnostic on the question whether neocortical death is always sufficient for the death of the person.

What is clear, however, is that the dominant conception of brain death as the death of the whole brain is inadequate as a criterion of death. While it is certainly sufficient for the death of the person, it is not necessary. It is, as I remarked earlier, an unstable compromise that seems intended, whether consciously or unconsciously, to satisfy intuitions both about the deaths of persons and about the deaths of organisms without requiring a dualistic metaphysic. That, I think, is its key attraction: it seems, on superficial examination, to offer a conception of death that captures the decisive significance we intuitively attribute to the irreversible loss of the capacity for consciousness while also doing justice to our beliefs about what counts as the biological death of an organism. If there is a single account that satisfies both requirements, then the pressure to embrace a dualistic metaphysic does not arise. In reality, of course, the dominant conception has neither of these virtues. For a person may irreversibly lose the capacity for consciousness, thereby ceasing to exist, without having suffered the death of the whole brain; and the death of the whole brain is, as I argued earlier, neither necessary nor sufficient for the biological death of the human organism. Separate criteria are required for the deaths of persons and the deaths of organisms. (The foregoing comments apply equally to the official British conception of death as the death of the brain stem.)

It should be reemphasized that cerebral death is here advanced as the criterion of the death or ceasing to exist of the person and not for the death of the human organism. It is, however, the death of the person and not that of the organism that is of moral significance. Mere organisms do not have interests and cannot be harmed or benefited in the relevant sense, though (as I will suggest shortly) a person who has ceased to exist may have a surviving or posthumous interest in what happens to his or her organism.

In many cases in which a patient enters a persistent vegetative state, what has happened is that the person has died or ceased to exist while the organism, sustained by the operations of the brain stem, remains alive. In these cases, provided that one's action is compatible with the wishes of the person when he or she was alive, there is no direct moral objection to disconnecting the organism from life-support systems or even to killing it in order to obtain its organs for transplantation.

It should be borne in mind, however, that not every case in which a person lapses into a persistent vegetative state is a case in which the person dies or ceases to exist. In cases in which the lack of capacity for consciousness is contingent—for example, when it is a result of a problem with the support mechanisms in the brain stem—the person may continue to

exist even though the coma is in practice irreversible. While this case is thus very different in metaphysical terms from that in which a persistent vegetative state is the result of the death of the cerebral hemispheres, it is not significantly different in moral terms. While in this case the person does continue to exist, he will in fact never regain consciousness and his life has thus ceased to be worth living. While there may or may not be a reason to kill or allow the organism to die for the sake of the person himself, it is hard to imagine a reason for keeping it, and therefore him, alive for his sake.

If the existence of each human mind is dependent on the functioning of the cerebral hemispheres, then anencephalic infants, who are born without cerebral hemispheres, are without minds. Since you and I and all others of our kind are essentially minds, anencephalic infants are a fundamentally different sort of thing from us. They are simply organisms—permanently unoccupied human organisms. Whereas in a normal infant's cot there are two substances—a human organism and the infant mind or self that will eventually become a person—there is only one substance in the cot of an anencephalic infant. This organism may well be alive but it will never support the existence of a mind, self, or person. There are, therefore, even fewer moral constraints on the use of the anencephalic infant—for example, as a source of organs or tissue for transplantation—than there are in the case of the living organism of someone who has suffered cerebral death. For, in the latter case, the organism once belonged to a person who may have a surviving interest in what is done to it or may have expressed preferences about what should be done with it. But in the case of an anencephalic infant, there is never anyone whose organism it is. The only people whose interests can be affected by what is done with the infant organism are its parents and those who might benefit from the use of its organs or tissues.

Brain Death and Brain Life

It has frequently been suggested that our understanding of when life begins should be symmetrical with our understanding of when it ends. I believe that, with certain qualifications, this is correct. But, just as the dualistic metaphysic requires that we have two distinct accounts of death, or the end of life, one for the person and another for the organism, so it requires that we have two accounts of the beginning of life.

Because the death of an organism and its ceasing to exist are not one and the same thing, it is in principle possible that its beginning to exist and the onset of its life are also different. But, since the human organism is in an important sense functional from the start (though of course its characteristic functions increase in complexity as it matures), it seems that its life begins at the same time that it begins to exist. As we have seen, with the exception of cases involving monozygotic twinning, this probably occurs around the time of conception, perhaps at syngamy. There are in fact interesting issues here but they are not important for

our present purposes.⁴⁸ The most interesting and morally important issues have to do with when *we* begin to exist and cease to exist.

Numerous writers have proposed criteria of “brain life” corresponding to various criteria of brain death. These proposals all seem extremely implausible if there is any suggestion that they pick out the beginning of the existence or the life of the human organism. If brain life is to be symmetrical with brain death, then brain life must be understood as marking the beginning of the existence of the mind or self, not the organism.

The idea that brain life marks the beginning of our existence will also seem implausible if the conception of brain death to which the notion of brain life corresponds is itself implausible as the criterion for the ceasing to exist of the mind or self. We have seen, for example, that the death of the whole brain cannot be the criterion for the ceasing to exist of the self. Because of this, proposals for brain life that are based on the dominant conception of brain death are themselves implausible. If one says that a person ceases to exist when his entire brain dies, or the last signs of life in the brain disappear, then one will be led to assume that brain life occurs when the first signs of life appear in the brain. This, however, seems entirely arbitrary. Interestingly, it is a useful test of the plausibility of a conception of brain death to see whether the corresponding conception of brain life is plausible.

According to the Continuity of Mind account, the mind or self ceases to exist when the cerebral hemispheres irreversibly lose the capacity to support consciousness and mental activity. The corresponding account of brain life is that the mind or self begins to exist when the cerebral hemispheres develop the capacity to support consciousness and mental activity. I defend the plausibility of this view in detail elsewhere.⁴⁹

Potential

This account of when we begin to exist has implications that are important for understanding the morality of abortion. I will briefly summarize them here, though they are spelled out in greater detail elsewhere.⁵⁰ If I began to exist only when my brain developed the capacity to support consciousness and mental activity, then all that existed in my mother’s womb prior to that point was an unoccupied, developing human organism. If, prior to that point, my mother had had an abortion, that would not have involved killing me, for the obvious reason that I would have had to exist in order for it to have been possible for the abortion to kill me. The abortion would instead have prevented me from coming into existence. Thus an early

48 For example, Quinn argues that human organisms may come into existence gradually. See Quinn 1984, section II.

49 See *Killing at the Margins of Life*.

50 *Killing at the Margins of Life*.

abortion—one that is performed prior to the coming into existence of a mind or self—is relevantly like an act of contraception. Unlike certain forms of contraception, it does kill a human organism but, again, mere organisms do not have interests and cannot be harmed in the morally relevant sense.

Many have argued that, even if the embryo is not yet a person, it nevertheless has the potential to become a person. This, it might be thought, is a reason for rejecting the idea that the embryo cannot have interests or be harmed. For it may be harmed by being prevented from realizing its potential.

Given the dualistic metaphysic, however, these claims are false. To see this, we must distinguish two types of potential.⁵¹ In one sense, X has the potential to become Y only if X and Y are identical. Call this *identity-preserving potential*. It is in this sense that Prince Charles has the potential to become the King of England. In another sense, X has the potential to become Y even though X and Y are not identical. Call this *nonidentity potential*. It is in this sense that my desk has the potential to become a pile of sawdust and a sperm and egg have the potential to become a zygote.

Most previous discussions have assumed that potential of the human embryo to become a person is identity-preserving. But, given the assumption that we are not identical without physical organisms, the human embryo has the potential to become a person only in the sense in which becoming does *not* imply identity. This is, of course, a very odd sort of “becoming.” It is natural to say that the desk becomes sawdust or that the sperm and egg become a zygote because in these cases the same matter is transmuted from one substance (or pair of substances) into another. By contrast, when the fetal organism “becomes” a person, this is not a process in which matter is restructured in such a way that one substance ceases to exist while another is realized in the same matter. Instead, in this process of “becoming,” the original entity continues to exist (though it soon ceases to be an embryo, a fetal organism, and so on) while generating and sustaining a *new* entity—the mind or self. We call this a process of becoming only because, as noted, we have hitherto wrongly assumed that only one substance is involved. If I am right, however, the fetal organism has the potential to “become” *two* things. It has the nonidentity potential to “become” (i.e., causally generate) a new substance—the self—and the identity-preserving potential to become a mature or adult human organism.

The embryo or fetal organism cannot, however, have an interest in realizing its non-identity potential to become a person. This is true for two reasons. First, it is only if X’s potential to become Y is identity-preserving that it can be good for X, or in X’s interest, to become Y. Second, mere organisms devoid of psychological properties are not the sort of thing that can have interests or be benefited or harmed. Thus, even though the fetal organism

⁵¹ Similar distinctions are drawn in Stone 1987: 818, and in Buckle 1988: 230–31.

has the identity-preserving potential to become a mature organism, it cannot have an interest in realizing this biological potential.

The various potentials involved in the early stages of human development may be summarized as follows. The sperm and egg have the nonidentity potential to become a zygote. The zygote has the identity-preserving potential to become an embryo, a fetal organism, a juvenile organism, and an adult organism. It also has the nonidentity potential to “become” a fetal mind or self, which itself has the identity-preserving potential to become a person. Of these various potentials, only the last gives rise to an interest in the realization of the potential. Because the fetal mind or self, which is a substance distinct from the fetal organism, has the identity-preserving potential to become a person, it can have an interest in becoming a person and can be harmed by having this potential thwarted. This is, in fact, only a cumbersome way of saying that the fetal self may have an interest in its own future life. (I argue elsewhere that this interest cannot be a strong one. This fact, together with certain other assumptions, shows that, while a late abortion may be against the interests of the fetus, this does not constitute a strong moral objection to late abortions.⁵²)

Brain Death and Euthanasia

The question whether it is acceptable to terminate life-support for an individual in a persistent vegetative state is often considered to be a question of euthanasia. To determine whether this is correct, we first need a definition of euthanasia. Let us say that euthanasia is an act of killing or of letting die that is intended to benefit and actually succeeds in benefiting the individual who is killed or allowed to die. An act that fortuitously benefits the individual killed or allowed to die but was not intended to do so is clearly not an instance of euthanasia. And an act that actually harms the individual who is killed or allowed to die, even though it was intended to benefit her, is only an instance of intended or attempted euthanasia. When killing an individual or letting her die is actually harmful to her, it is not euthanasia.

Recall that, according to the Continuity of Mind account, there are two distinct types of persistent vegetative state, one in which the person survives in a permanently unconscious condition and another in which the person or mind has altogether ceased to exist. Let us consider these in turn.

When a person continues to exist in a state of permanent unconsciousness, his life has, as I noted, ceased to be worth living. It is also, however, not a burden to the person, for he is aware of nothing. He cannot feel pain, suffer, or regret his present state. The main reasons for terminating his life-support systems therefore have to do with the interests of others: for example, that continuing to support his life drains resources away from valuable purposes

52 *Killing at the Margins of Life.*

and uses them in a way that benefits no one. If life-support is withdrawn for this reason, this is not euthanasia, though it may nevertheless be justifiable.

It can be argued, however, that life in this state is objectively degrading even if it is subjectively unobjectionable. If so, then the termination of life-support with the intention of releasing the unconscious person from an objectively degrading state may count as euthanasia.

Finally, consider the case in which a persistent vegetative state is the result of the death of the cerebral hemispheres. In that case the person has already ceased to exist; consequently he can be neither killed nor allowed to die. In a literal sense, euthanasia is no longer possible. His organism may, of course, be killed or allowed to die, but since a mere organism cannot be the subject of benefits or harms, it is not a possible candidate for euthanasia. This is a matter of conceptual necessity, in the same way that it is of necessity not possible to practice euthanasia on a plant.

There remains, however, one possibility. Most of us care what happens to our bodies after we die. One feels that it would be degrading, for example, if one were to donate one's body for use in medical research only for it to be mutilated and made an object of derision by medical students. Similarly, one may have a deep aversion to having one's living body sustained indefinitely by artificial means after one has oneself ceased to exist. It is therefore arguable that terminating life-support for, or even actively killing, the living organism of a person who has ceased to exist benefits that person posthumously. This would, of course, be a case in which the beneficiary and the thing killed or allowed to die would be different. And normally if this is the case then the act of killing or letting die cannot be euthanasia. But, given the extremely close (though here unspecified) relation between a person and his or her organism, it is surely acceptable to extend the boundaries of the concept so as to include this as an instance of euthanasia.⁵³

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