DEATH

Steven Luper

What is death? How can its occurrence be detected? These questions are interrelated, as we can reliably detect death only if we know what it is. The standard view is that dying consists of ceasing to be alive. However, this, the loss of life account of death, seems to be open to various challenges. For example, it is sometimes rejected on the grounds that a living thing might cease to exist, losing life thereby, without dying. We will need to determine whether this criticism has merit. Moreover, in order to clarify what death is for you and me, we must consider what type of thing we are, since what it takes to end a creature’s existence depends on what that creature is. Many theorists claim that you and I are persons, where being a person entails having various sorts of psychological features, such as the capacity for self-awareness. If these theorists are correct, then the loss of these features would end our existence, and the question will arise as to whether that loss would constitute death.

In this chapter, the loss of life account will be defended and clarified. In order to illustrate its implications, the case of severe dementia will be discussed. Towards the end of the chapter, criteria for detecting death will be considered.

What Life Is

In order to clarify the nature of death, we can begin by discussing what it is for something to be alive. To that end, it will be useful to consider typical examples of things that are alive, such as trees, cats, amoebas, and human animals, and ask what imbues these organisms with life.

The answer, it might seem, is their capacity to develop and maintain themselves using processes such as respiration, photosynthesis or chemosynthesis, cell generation, and waste removal. These may be called vital processes. At least as a good approximation, we might say that being alive consists of having the capacity to deploy processes that are saliently similar to these.

However, this viability account of life is often rejected on the grounds that things cease to be alive while in “suspended animation.” Consider that infertility clinics often store embryos for extended periods of time by freezing them. While frozen, the embryos are in suspended animation (or simply “suspended”), in the sense that their vital processes are brought to a halt, or at least very nearly so. Other organisms, too, may be suspended. For example, seeds and spores are, for practical purposes, suspended, as are dehydrated water bears. (Water bears, or tardigrades, are tiny animals that have evolved the ability to survive drought for decades by drying up and bringing their metabolism virtually to a stop.) Despite being suspended, these organisms do not lose the capacity to deploy vital processes, for their vital processes may be restarted—by wetting the seeds and water bears and by warming the embryos. Hence, these organisms are alive according to the viability account of life, which says that the capacity to
deploy vital processes suffices for life. If they are not alive, as some theorists have suggested (e.g., Feldman 1992; Belshaw 2009; Gilmore 2013; DeGrazia 2014), then we must reject the viability account. We will also have to countenance the possibility that something can cease to be alive without ceasing to exist, for clearly seeds are still seeds while dormant, an embryo is still an embryo while frozen in an IVF facility, and a water bear continues its existence during its dry hibernation. What is more, on the assumption that suspended organisms are not alive, but also not dead, we will have to reject the loss of life account of death.

Before we decide whether to abandon the viability account, let us consider more carefully how suspension changes an organism. It is one thing to have the capacity to deploy vital processes and another to deploy them. Suspended organisms have this capacity but are not making use of it. To mark this distinction, it is useful to introduce two pairs of contrasting terms. The first pair is *vital* and *nonvital*: when something is employing its capacity for vital processes, let us say that it is vital; when it is not employing its capacity, let us say that it is nonvital. The second pair is *viable* and *unviable*: we can use the former to refer to the condition of something that is capable of engaging vital processes and the latter for the condition of something that has lost this capacity.

With this distinction in hand, we can explain why some theorists are reluctant to say that suspended organisms are alive: such theorists are focusing on the fact that these organisms are not vital. However, their concerns can be accommodated without rejecting the viability account. We need only describe cases of suspended animation by saying that the individuals concerned are nonvital even though still alive, still viable. In this way we can also accommodate the tendency among biologists to characterize things like spores and seeds as “alive” until these are no longer able to grow into plants—that is, they are alive until they are no longer viable.

### What Death Is

If life consists of viability, it remains plausible to say that death is the loss of life. However, this view can be challenged, and we will want to see if it can withstand criticism. We will consider two objections. The first is that a living thing could cease to exist without dying. The second is that, unlike death, loss of life may not be irreversible or permanent. We can begin with a more precise statement of the loss of life account itself.

Combined with the view that life is viability (as opposed to vitality), the loss of life account of death can be stated as follows:

> Dying is the loss of a thing’s life—the loss of its viability.

Of course, it is one thing to die and another thing to be dead. A thing dies in virtue of losing viability. It dies at the time of that loss. It is dead after that loss. We can add these details to the loss of life account:

> Dying is the loss of a thing’s life—the loss of its viability. A thing dies at the time it loses its viability. It is dead afterwards.

Now, this account would be unacceptable if living things could cease to exist without dying, since any living thing that ceases to exist ceases to be alive. But does anything cease to exist deathlessly? According to Jay Rosenberg (1983, p. 22) and Fred Feldman (1992, pp. 68–69), this happens frequently. For example, it occurs when an amoeba reproduces. Dividing into two amoebas ends its existence, but division is a deathless exit. Feldman thinks there are other
DEATH

deathless exits as well; it happens, for example, when two chlamydomonas, which are single-celled algae, fuse to produce a zygote.

However, there is a way to respond to Rosenberg and Feldman: instead of saying that, in ceasing to exist, some things lose life in ways that are deadly and others lose life in ways that are not deadly, it seems reasonable to say that the apparent exceptions, such as division and fusion, are unusual ways of dying, not ways of escaping death altogether. Typically, death involves the destruction of an individual’s capacity to engage vital processes. For example, when a person is fatally stabbed, the circulatory system breaks down and its various components, such as red blood cells, are destroyed. By contrast, in division and fusion, the bits of an organism that are constitutive of its vital processes are transferred, as it were, to its children. Although this is an unusual way to lose life, it still entails the loss of life (since the original organism or organisms cease to exist), and, as such, it is reasonably treated as a death.

Now consider the second objection to the loss of life account, which was that loss of life may not be permanent or irreversible, unlike death itself. Perhaps an individual’s viability could be restored after it—and not merely vitality—was lost for a time.

To see why such restoration seems theoretically possible, imagine a machine, the corpse reanimator, that repairs corpses. It corrects flaws in DNA, restores broken cell membranes, and so forth, making repairs down to the molecular level, and restarting all vital processes. It is so thorough as to return an individual’s corpse to much the same state as that individual was in before she lost viability. It seems reasonable to say that the viability of the individual whose corpse is repaired will have been restored. If this is correct, then loss of viability may not be permanent (Luper 2002, 2009, pp. 44–48).

However, what we have just concluded about viability is a problem for the loss of life account only on the assumption that death is irreversible, and that assumption may be convincingly challenged. Consider the corpse reanimator again. If such a device could indeed restore the viability of the individual whose corpse is repaired, then it could restore the life of that individual, thus reversing her death.

Assuming that it is even theoretically possible to restore life, we would need to refine the last clause of the loss of life account as follows:

Dying is the loss of a thing’s life—the loss of its viability. A thing dies at the time it loses its viability. It is dead at all times after it dies except while its viability has been regained.

Moreover, we will want to reject accounts of death that imply that it is necessarily permanent. For example, we should reject the view that dying is the permanent or irreversible loss of viability.

What We Are

The loss of life account implies that you and I will die if we cease to exist, as ceasing to exist entails losing life. Hence, to further clarify what death involves for creatures like us, we will need to clarify what we are.

So, what are we, and under what conditions do creatures like us remain in existence? Few issues are more controversial; it is even difficult to formulate our question in a way that is not question-begging. (For example, if we state it as, What is it to be a person?, we will have presupposed that we are persons, which, as we will see, some theorists deny.) To facilitate the discussion, I will coin the term "persimal" to refer to what you and I are, whatever that turns
out to be. So the questions before us are, What are persimals? and What conditions are necessary and sufficient for the continued existence of persimals?

I will discuss three of the most plausible accounts of persimalhood. The first is the simplest: to be a persimal is to be a human animal. This view is known as animalism (Snowdon 1990; Olson 2007). The second is that persimalhood consists of being a Lockeian person. To be a Lockeian person, in turn, is to have the capacity for self-awareness. (According to Derek Parfit, the leading proponent of personism, “to be a person, a being must be self-conscious, aware of its identity and its continued existence over time” [1984, p. 202; cf. 2012, p. 6].) We can call this view personism. A third view is that persimals are minds, and being a mind consists of having the capacity for consciousness. Call this view mindism (McMahan 2002). All Lockeean persons are minds, but mindism differs from personism since some minds, such as those of giraffes and human infants, are not self-aware. Personism and mindism are members of a family of accounts which say that persimalhood consists solely in the possession of some mental feature. Accounts that take this stance may be referred to as mentalist. Mentalists say that a persimal is not an animal but instead is “realized in” an animal, in much the same way that a statue is realized in a particular parcel of metal. The statue is not identical to the metal, as it may be destroyed by being melted, yet melting does not destroy the metal.

The three approaches have very different implications concerning our continued existence. Personism says that we continue to exist by virtue of remaining the same Lockeian person—the same self-aware being. According to Parfit, we remain the same Lockeian person over an interval of time only if we have a substantial degree of psychological continuity over that time (more about this later). Mindism says that our remaining in existence is a matter of being the same mind, and that we remain the same mind as long as the part of the brain that makes consciousness possible remains intact. According to animalism, we remain in existence over time by being the same animal over time. Assuming that this animal need not have psychological features to exist, we could survive the loss of psychological continuity and the capacity for consciousness.

**Dementia and Death**

Because it is entailed by ceasing to exist, we can illustrate what death might involve by considering how proponents of the three accounts of persimalhood would respond to the question, Is it fatal to incur the sort of damage that severe dementia does to its victim’s cognitive abilities? We can begin with a few words about dementia and its effects on awareness and consciousness.

Dementia is a disorder in which a person’s cognitive abilities are compromised enough to substantially disrupt normal conduct. The most common cause is Alzheimer’s disease, in which tangles or clumps of proteins accumulate in the brain, resulting in a progressive, gradual loss of cognitive capacities. Another form of dementia results when the brain is damaged by obstructions to its blood supply. Dementia may be caused by other things as well, such as thyroid illness and certain vitamin deficiencies.

In damaging cognitive abilities, dementia gradually destroys the capacity for awareness. Awareness is a form of consciousness. An individual is in a state of consciousness if and only if there is something it is like to be in that state (Nagel 1974). By contrast, awareness is a form of consciousness that is directed at some more or less specific object, such as an event or a thought. In particular, self-awareness will involve the awareness of some aspect of the self. In degrading awareness, dementia gradually destroys self-awareness.

Eventually, dementia can give way to a persistent vegetative state (Horne 2009). The term vegetative state (VS) refers to the condition of individuals who are incapable of voluntary interaction with the environment but who retain, to some degree, a sleep/wake cycle and
respiratory or digestive functioning. When individuals remain in a vegetative state for at least a month, they are said to be in a persistent vegetative state (PVS). A more recent term for VS is unresponsive wakefulness syndrome—“unresponsive” to indicate that movement is limited to reflex behavior and “wakeful” to indicate that eye opening persists. To mark the condition of individuals who display intermittent and minimal voluntary behavior, the term minimally conscious state was introduced (Gosseries et al. 2011).

Imaging shows signs of brain function in some patients diagnosed with PVS (Horne 2009), but when their vegetative state persists long enough, they are presumed to have lost the capacity for consciousness. Nevertheless, dementia can progress quite slowly, leaving some forms of awareness intact while ending others, and although it is difficult to determine whether a severely demented individual is aware of anything, some recent research suggests that many retain some minimal forms of awareness well into the final stages of dementia (Clare 2010).

Mentalism implies that persimals who are the victims of lengthy persistent vegetation are dead, as they have lost the capacity for consciousness in any form. Because they distinguish between these persimals and the human animals in which the persimals were once “realized,” mentalists will grant that the animals may survive in a vegetative state, languishing in a hospital bed, long after the persimal has ceased to exist. By contrast, animalists would say that the persimal is that animal, and since it survived the injury, so did the persimal.

However, some forms of mentalism imply that dementia can be fatal well before the onset of persistent vegetation. It can be fatal even if its victim retains minimal self-awareness. According to Parfit, persimals are Lockean persons, but Lockean persons remain in existence from one time to another only if their mental life displays strong psychological continuity over that time. The requisite continuity consists of “overlapping chains of strong connectedness.” Strong connectedness exists just if, over each day, there are “at least half the number of direct connections that hold, over every day, in the lives of nearly every actual person” (1984, p. 206). This formulation is not entirely clear, but it seems reasonable to conclude that if dementia is severe enough, it will eventually disrupt the psychological continuity that is required for the continued existence of a Lockean person. At that point, given Parfit’s assumptions, the Lockean person would perish.

Is it plausible to say, with Parfit, that dementia kills people by ending the strong psychological continuity of their mental life? Perhaps, but the consequences of Parfit’s view are exceedingly strange. To see why, consider a Lockean person we will call First. Suppose that First is “realized in” a human animal we will call Annie, who enjoys normal cognitive abilities. Suppose that Annie develops dementia, which eventually drastically diminishes her cognitive abilities. As a result of Annie’s decline, First’s mental life no longer displays strong continuity. At that point First dies. However, it does not follow that no Lockean person is “realized in” Annie. After dementia takes its toll, Annie’s cognitive processes may continue to give rise to some mental life. In fact, that mental life might include the capacity for self-awareness, in which case a Lockean person will be “realized in” Annie after First’s existence ends. Call her Second. It is hard to believe that dementia might result in the demise of First and the advent of Second, but a further consequence of Parfit’s view is even more bizarre, namely that a Lockean person like Second, whose mental life is too impoverished to display strong continuity, cannot remain in existence from one time to another. Hence, severe dementia not only kills a Lockean person, but it may also result in a series of distinct Lockean persons, each replaced by the next, and none lasting beyond the moment.

To avoid these counterintuitive results, mentalists could reject Parfit’s assumption that persimals persist only if their mental life displays strong psychological continuity. Mentalists might instead allow that any sort of psychological continuity suffices (McMahan 2002). Alternatively, they could abandon personism in favor of mindism. Mindism says that persimals
continue to exist if they retain the capacity for consciousness, so their survival does not require any sort of self-awareness or psychological continuity. Dementia is fatal only if it results in the loss of the capacity for consciousness.

Suppose instead we accept the animalist claim that our existence continues as long as we remain the same animal. Then we can conclude that neither the loss of self-awareness nor consciousness is, by itself, fatal, since neither ends the life of a human animal, assuming that animal retains its capacity to engage its vital processes.

The upshot is that we must resolve the difficult issue of what we are before we can answer our question about the fatalness of afflictions, such as dementia or even brain death, that degrade our mental faculties. Mentalism implies that sufficient degradation will indeed be fatal. At the same time, the proponents of mentalism will agree that afflictions of the psyche are not fatal to the human animals in which we are “realized.” But given animalism, we are those animals, and as such we could survive even the loss of our minds.

**Criterion for Death**

Our conclusions have powerful practical consequences for the practice of medicine. The loss of life account, if correct, tells us what death is, but as long as we are not sure what we are, we will not always know whether a condition would constitute the loss of life. Usually we can know whether death has occurred, for certain features indicate death regardless of whether animalism or a form of mentalism is correct—features such that any of us with such features are dead. Some such features, such as putrefaction and decapitation, are also easy to detect, but they are of little help because they are either rare (decapitation) or appear too late (putrefaction). Another feature that suffices for death is far more useful, namely brain death. Unfortunately, as we will see, we cannot identify a feature that is clearly necessary for death—a feature such that anyone who is dead has that feature. Hence, we cannot formulate adequate criteria for death: conditions that are necessary and sufficient for death and that are relatively easily detected.

Brain death occurs just if all of the brain, except perhaps for bits that are peripheral to its functioning, has ceased to be alive. By focusing on this feature, we can state a criterion for (persinal) death, which we may call the brain death criterion. It can be formulated quite simply:

An individual is dead if and only if that individual’s (entire) brain has died.

This criterion is closely related to the standard for death that is most widely adopted in law in the United States, as set forth by the Uniform Determination of Death Act, according to which “an individual who has sustained either (1) irreversible cessation of circulatory and respiratory functions, or (2) irreversible cessation of all functions of the entire brain, including the brainstem, is dead” (President’s Commission 1981, p. 119). There are important differences between our brain death criterion and the standard formulated in the Death Act. For example, our brain death criterion makes no use of the term “irreversible,” in view of the theoretical possibility that death could be reversed. Also, the standard set out in the Death Act disjoins two conditions that mark death, saying that either suffices. One is irreversible cessation of brain functions, and the other is the traditional mark of death, namely the irreversible cessation of circulation and respiration. The standard accepted in the UK and in several European nations is similar, but there brain death is defined as the “permanent functional death of the brain stem” (Pallis 1982, p. 1488).

Meeting the brain death criterion clearly suffices for death given mentalism, as we lose all of our mental capacities when the brain dies. It is more difficult to show that it suffices given animalism. Still, we can devise a plausible argument by consulting the standard defense of the
brain death criterion (offered, e.g., by Pallis 1983; DeGrazia 2014). Putting aside the issue of reversibility, the standard reasoning seems to be that (a) any organism dies when it can no longer function as an integrated whole, since it can exist only when able to function as an integrated whole (without that ability it loses its distinctive capacities); and (b) a human animal can function as an integrated whole only if equipped with a functioning brain; so (c) the human animal dies when its brain can no longer function. Given that persimals are human animals, it would follow that we die when the brain loses its capacity to function.

However, this defense faces an obstacle: don’t human animals spend a significant amount of time in the womb before they develop a brain? If they are alive in the womb, why can’t they be kept alive on life support after the brain dies? To overcome this obstacle, we might develop one of two lines of thought. We might argue that bona fide, full-fledged human animals do not come into existence until they develop functioning brains (perhaps because that is when they are able to function as wholes), and the brain’s capacity to function is essential to the continued existence of a (proper) human animal, hence if the brain is lost, the human animal dies. On this view a human animal cannot die before it develops a brain since nothing can die prior to its own existence. (What might die is a mass of tissue that has not yet formed itself into a human animal.) Alternatively, we could claim that what it takes to be a human animal varies with that animal’s stage of development. Accordingly, we might argue that (a) a creature is a human animal only if it develops certain specified features according to a certain timeline (unless its development is interrupted); (b) one of these features is the possession of a brain; and (c) once the brain develops, its capacity to function is requisite to the animal’s continued existence (even though a functioning brain is not requisite at earlier stages of development); therefore, (d) if the brain’s functionality is lost, then the human animal dies. On this latter view, a human animal dies if its brain dies, even though it took time for it to develop a brain.

Although brain death may suffice for death, the claim that it is necessary is disputable, because it is not clear that the entire brain must cease to function for death to occur. Consider the issue from the standpoint of animalism. It would be reasonable for animalists to take the following position: if all of an animal’s body except for its brain dies, that animal has ceased to exist, even if the brain itself remains alive for a while, perhaps on some form of artificial life support. This is to say that an animal cannot be pared down to its brain, as a brain is not an animal. Hence, if we are human animals, we could die even though the brain lives on. (Suppose that, contrary to what has just been said, an animal can indeed be pared down to its brain. Presumably, there are substantial components of the brain, such as the cerebrum, that are not animals. So in theory a human animal would die if all of it except for the cerebrum is destroyed. This death would fail to meet the brain death criterion.)

Although animalists can claim that death is consistent with the survival of the entire brain, mentalists will say that death is consistent with the survival of some of the brain. Consider personism. It is reasonably clear that some of the brain can survive the demise of a Lockean person, since the capacity for self-awareness can be lost if various components of the brain die but the entire brain does not. Thus personists are likely to favor what we might call a self-awareness-centered criterion for death, designed to detect the loss of the capacity for self-awareness. But this criterion will be difficult to specify, as the facts about which parts of the brain are salient are in dispute. Self-awareness is lost if the cerebrum dies, but it might also be lost if other parts of the brain die or malfunction.

Let us add that different forms of mentalism will consider different parts of the brain to be salient to death. Suppose that some part of the brain that is necessary for self-awareness can no longer function, say because of severe dementia or damage to the cerebrum. Suppose also that the capacity for consciousness remains. Then personists will say that death has occurred, yet mindists will disagree. Mindists will favor what is often called the “higher brain criterion” for
death (it might be better to call it the *consciousness-centered* criterion, to bring out the contrast with the *self-awareness-centered* criterion). According to its proponents, death occurs if and only if the capacity for consciousness is irreversibly lost. (Mindists might drop the requirement of irreversibility, if persuaded that, theoretically, life could be restored.) This criterion is defended by several theorists, including Robert Veatch (1975) and Tristram Engelhardt (1975). Here, too, it will be difficult to formulate the criterion so that it is both accurate and relatively easy to detect, as the meaning of the term “consciousness” is controversial, and so are the facts about how consciousness is related to the various parts of the brain.

So, on the animalist and mentalist views of persimalhood, we might be dead even though the brain is not dead, yet there is no useful necessary condition for death that these approaches will agree on.

**Conclusion**

To live is to be viable, and to die is to lose life. In theory, death may be reversed, since in theory the loss of viability is reversible. Because death is the loss of life, a living thing dies when it ceases to exist. However, what it is for something to cease to exist depends on what that thing is, and what you and I are is controversial. Animalism says that we are human animals; on this view, we die when the animal to which we are identical ceases to exist. However, most theorists reject animalism. Personism, which says that we are essentially self-aware creatures, is more widely defended. A further alternative is mindism, the position that we are essentially conscious creatures. These views have very different implications. If severe dementia destroyed our capacity for self-awareness yet left behind an animal that was still capable of consciousness, personists would say that we have died, but mindists and animalists would disagree. If the dementia worsened, and destroyed the capacity for consciousness, mindists would now say that we have died, but animalists would say we survive as long as the human animal persists. Because of these disagreements, it is difficult to formulate a useful criterion for death. Animalists, personists, and mindists can accept the view that death occurs if the entire brain ceases to function, but none of them will say that death occurs *only* if the entire brain ceases to function.

**References**


**Further Reading**