
Symposium on death

The reversibility of death

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Author's abstract

The ordinary concept of death is analysed and compared with revisionary medical definitions, especially those based on irreversible loss of brain function. Prior critics of revisionary definitions have focused on the locus, the brain; I am concerned with the irreversibility condition. I argue that 1) the irreversibility condition is ambiguous, 2) it has unacceptable epistemic and other consequences on any plausible construal, and 3) irreversibility is not part of the ordinary concept of death. I conclude that recent medical definitions seek illegitimately to obtain the certainty of a weak construal of 'irreversible' along with the freedom from moral obligation of the strong construal.

Death is both inevitable and final. Death is irreversible, a permanent cessation of essential processes of life. The concept of death as necessarily final is reflected in medical definitions (1) and assumed in subsequent discussion of these definitions. Central to all such medical definitions is the irreversibility of loss of function, although there has been dispute about just which loss of function it is that shall constitute death. For example, permanent loss of eye function is not death on any account, and irreversible cessation of all metabolic function is death on most anyone's account. It is partial permanent loss of brain function which forms the area of dispute. But the basic features of the characterisation of death are constant: irreversible loss of function of part or all of the body. Let us call these 'medical' definitions of death, to distinguish them from lay, religious, and lexicographic definitions.

Here I wish to note certain features, certain conceptual consequences, of this entire family of definitions of death which are based on the notion of irreversible loss of bodily function. First, I wish to argue that these definitions form a significant departure from the ordinary concept of death, which is weaker. The medical definitions are not clarifications; a clarification would increase precision or would resolve an ambiguity. A clarification cannot be inconsistent with the concept being clarified, but the

medical definition of death is inconsistent with the ordinary definition.

Second, I will attempt to show that the medical definitions of death have peculiar and perhaps unacceptable consequences. And since these are not consequences of the ordinary concept, they underscore the first claim, that the medical definitions depart in essential ways from the ordinary concept.

The medical and the ordinary concepts of death

From the standpoint of both medical and legal practitioners, there are institutional and also moral pressures pushing toward a view of death as irreversible. Doctors have a host of responsibilities to living patients under their care. It is highly desirable to know precisely when those responsibilities cease. Increasing social and legal scrutiny of medical practice augments these pressures. It is undesirable for there to be a protracted time during which it is not clear what the medical responsibilities are. If a patient dies, it is natural to wish to suppose that one's medical responsibilities to that patient cease forever.

But it is not just a cessation of positive responsibilities to a patient which cease at death. Upon death, certain liberties may often be taken with a patient's body which may not be taken during life. Given the previous consent of the patient or his next of kin, his tissues may be harvested on a large scale. His internal organs may be rearranged in ways inconsistent with any future return to function. Bacteria may be permitted to proliferate, subject only to the health and comfort of the surviving. All blood may be removed from the body. Poisonous chemicals may be injected in the place of blood. The deceased may be cooled, buried, or simply incinerated.

Upon death, the legal requirements for treatment of non-medical aspects of the person change as well: the property of the deceased becomes the property of others. The decedent's spouse is free to re-marry. Other contractual obligations to the deceased cease. These non-medical postmortem changes have in common with the medical changes a cessation, or at least considerable curtailment, of obligation to the deceased.

Most of these liberties which may be taken upon the

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death of a person have consequences which themselves are either irreversible or only reversible with great difficulty. The decedent's estate, once liquidated, would be very difficult or impossible to restore. A cremated brain is irreversibly lost. Thus it is natural to wish to view death itself as irreversible – otherwise, what could justify taking such irreversible actions involving the decedent's body and property?

But irreversibility does not appear to be a characteristic of the ordinary *concept* of death. It may indeed be that many believe that death is final and not in fact reversed. But this is contingently the case, not a logical consequence of the concept of death itself. It seems clear that the inevitability of death is not a part of either the concepts of death or of life. It is contingently the case that all men are mortal; there is nothing in the concept of death or life that precludes a life that continues forever, without death. The same is true, I believe, of irreversibility.

The underlying evidence for this is straightforward enough: if irreversibility were a component of the ordinary concept of death, then 'x was dead but later was brought back to life' would be clearly self-contradictory. It would be on a par with saying 'x is a bachelor but also has a wife'. But it is not a contradiction to say that something is dead but will come back to life. Indeed many people believe this is not only not a contradiction but actually occurs while others believe that it has occurred or will occur in the future. The doctrine of resurrection of the dead is widely believed, by both those in traditional religions and those not. Christians are told that Christ raised the dead, bringing them back to life. And Christ himself is held to have been killed yet to have risen from the dead. But if death were by definition irreversible, these views would not merely be false, they would be incoherent self-contradictions. They do not seem incoherent.

It should be noted that the question of the logical possibility of the reversal of death is quite independent of the plausibility of the claim that any living creature has or ever will come back to life. This claim may be implausible, just as is the claim that any living thing will never die. But the implausibility does not owe to features of the concepts. Given contingent features of the world, death is probably inevitable and unlikely to be reversed. But were the world to change in certain ways, death might become both avoidable or reversible.

Logical consequences of irreversibility in the medical definition

The introduction of irreversibility in medical definitions appears then to be a departure from the ordinary concept of death. It should not be surprising that this departure introduces conceptual problems. To start with, 'irreversible' suffers from an ambiguity. 'Irreversible' means 'cannot be reversed'. Accordingly, a reasonable construal is that if something is irreversible then at no time present or *future* will anyone be able to reverse the condition. In

the future it might be possible to reverse *similar* conditions in future patients, such that they will not die of the condition which causes the death of this patient – but if this patient is dead it will never be possible to restore *this* patient to health. This 'forever' construal of 'irreversible' is also plausible if 'irreversible' is similar to other '-bles' such as 'irrefutable', 'incorrigible', 'irredeemable', and so forth. These predicates apparently preclude not only present but any future refutation, reform, redemption, and so forth. Finally, the forever interpretation is plausible because it appears to satisfy the institutional demands for finality. Let us call this construal of the component of medical definitions of death dealing with irreversible loss of function the 'strong irreversibility condition'.

If the irreversibility condition is construed in this manner, it raises formidable epistemic problems – including some of the very pragmatic problems which, I have suggested, the definition is intended to resolve. One would hope that a revisionary definition of death would make it clearer when death occurs. Yet virtually no one, on this strong construal of the irreversibility condition, is clearly dead. Perhaps they are dead, perhaps they are not. At some time in the future it may be possible to restore a body in very bad condition to life, perhaps on the basis of reconstructing the DNA and rebuilding the damaged portions of the body, using exotic, as yet undeveloped or even contemplated, techniques. These future possibilities can certainly not be ruled out altogether; at best they can be deemed to be remote. But induction from medical progress in restoration of function strongly suggests that it is likely that some day function may be restored to any part or the entirety of an organism. In that case, it is not clear what conditions are reversible and hence who actually satisfies a definition of death incorporating the strong irreversibility condition.

But this uncertainty created by this strong construal of 'irreversible' then causes numerous practical and moral problems: it hardly seems permissible, for example, to remove organs from persons who may or may not be dead. Furthermore, given the uncertainty wrought by a strong construal of irreversible, we would appear to owe people a right to the most careful preservation of their bodies on the chance that their condition will become correctable. In some cases, we may even have an obligation cryogenically to 'suspend' life in order to preserve the body in the best possible condition for future resuscitation. This could be the case where continuation of life processes is clearly and seriously damaging the body, as with a serious immunological deficiency or with a rapidly metastasising cancer. It is often medically advisable to reduce the activity of a patient and, as in surgery, temporarily to induce unconsciousness. In any case, reducing a terminally ill patient's body temperature to -100, such that all life processes cease, will not clearly be causing her death, as it may plausibly be increasing her chances for a reversal of the condition, for health, in the future. Rather than provide a clear threshold for

the cessation of medical responsibility, the strong irreversibility condition, if taken seriously, creates uncertainties and may create new and quite possibly unattractive obligations.

Thus it seems undesirable to construe 'irreversible' in such a strong way as to imply that whether a patient is dead here-and-now depends upon what may or may not be possible in the future. Let us then consider a weak construal of 'irreversible': 'not reversible *now*'. On this construal, we avoid the problems raised by future possibilities, and this clearly has the advantage of eliminating the uncertainty, and correlative possible medical obligations to the patient's body, that future contingencies raise.

But our epistemic gain is a loss elsewhere. New forms of *relativity* are introduced. The loss of function is not reversible now by whom? Not anyone in this operating room? This city? This country? The world? With this equipment – or with the best experimental equipment from some research laboratory?

And no matter how these relativities to persons and equipment are resolved, the explicit relativity to time – 'not reversible *now*' – creates odd results. The same physical state of a body will be death at some times but not death at other times. This is not to say that the same state will *lead* to death at some times but not others, but rather that the very same state will actually *be* death at one time but not the other.

Thus the weak construal of 'irreversible' has the surprising consequence that person X can come back to life, although X's physical state remains totally unchanged and X still *seems* to be quite dead. A body can be dead for five minutes and then be alive – in the absence of any physical change in the erstwhile corpse.

New potential moral problems result. Suppose that I am a doctor with a patient whose condition is irreversible at time *t*. The patient has no discernible brain function, and his heart would stop as soon as he were removed from a heart-lung machine. On the weak, well-motivated construal of the irreversibility condition in the medical definition, the patient is dead; his condition is now irreversible. But suppose also that my colleague Dr X is standing in the operating room. Dr X cannot reverse my patient's condition – yet. But Dr X, using a new technique, has reversed this very condition in chimpanzees with a one hundred per cent success rate recently. Everything suggests that a variant of the technique will be applicable to humans. But Dr X cannot yet apply this technique to humans because the enormously complex calculations which would show precisely how to apply the technique to humans are only now being performed on the hospital computer. Dr X is standing at a terminal in the operating room awaiting the results of the computer run. Those results are expected in three minutes. Thus my patient is dead, because he satisfies the 'now' construal of the irreversibility condition in the medical definition. But my moribund patient will instantly cease being dead at the end of the three minutes, because at that point the condition will then be

reversible! In the meanwhile, I presumably have the right to harvest vital organs (my patient and next of kin have previously consented to such harvesting upon the patient's death). Yet it is certain that if I do this now the dead patient's condition will not be reversible in three minutes, whereas if I refrain from harvesting and keep the respirator connected, the patient's condition will become reversible. It seems *very* plausible to hold that I have a moral (and legal) obligation to the patient to preserve his present condition even though he is medically dead. Thus the 'now' construal of the definition raises the undesirable possibility that a doctor can have a responsibility to a dead patient which is exactly the same as that to a living patient.

The situations envisioned in this scenario may seem remote or unlikely – but of course those are exactly the situations that make for historic cases in law. While the collapsed time-frame in the scenario is extreme, where an ability to reverse a loss of function is forthcoming in three minutes, the general problem posed is not dependent upon this time-frame. It appears that some patients can be sustained indefinitely in coma with no apparent cerebral function and it is simply unknown whether or not a reversal will be possible in the future. If one extrapolates from past clinical experience with patients in such states, it is reasonable to conclude that recovery is extremely unlikely. But such an extrapolation is faulty – it is clearly based on *past* medical capabilities and those are *sure* to be different in the future. But the *time* at which medical advances will be made cannot be predicted (2). Thus, the main difference between the Dr X scenario and most actual situations is the precision with which the time of the advance is known. But given the openendedness of medical progress, it is reasonable to suppose that the ability to reverse nearly any condition will be attained at *some* time in the future.

Thus, on the medical definition and with the 'now' construal of irreversibility, it can easily come about that a patient is dead but will not be dead in the future if the doctor acts to preserve the present state of death and not let the patient's body deteriorate significantly. This amounts to admitting the possibility that death is reversible, not now but possibly later. On the supposedly weaker 'now' construal of reversibility the doctor may have large responsibilities to the medically dead. Whereas on the strong 'once and for all' construal of the irreversibility condition, as we have seen, many patients, no matter how lifeless they appear now, are probably not dead at all.

Thus there are serious problems for both ways of understanding the irreversibility condition. The first construal of irreversibility, on which it is for all time and not relative to the present, has the counterintuitive consequence that one cannot possibly come back to life. Death is defined as irreversible for once and for all – but this surely conflicts with the ordinary concept. It seems that death, on the ordinary concept, is in principle reversible, at least by divine intervention and possibly, as in *Frankenstein*, by esoteric medical

means. It is not surprising that the revisionary definitions, motivated as they are, deviate from the ordinary concept and seek simply to *stipulate* that death is an irreversible state. If death is reversible, as in the ordinary concept, then what is done to a body after death may well affect the possibility of that reversal, as was noted above. In particular, mutilation, as by the removal of vital organs, will undoubtedly make reversal more difficult. Since the motivation for the definition is to make such mutilation permissible, the definition naturally seeks to conceive death as irreversible, for then presumably no harm can be done in removing the organs. On the ordinary concept, death is possibly reversible – it is conceivable that the dead come back to life – and so mutilation of the body of a dead person is quite possibly a harm. It need not just be squeamishness or irrational prejudice which underlies the lay discomfort with the medical definition and the organ removal it permits. It is rather that there may be great harms being done.

The ordinary concept of death

If on the ordinary concept death is reversible, what is the content of the ordinary concept? I believe that the ordinary concept of death embodies an essential distinction between the natural and the unnatural. Death is something that occurs in nature. Organisms are born, live, and die as a matter of course. Life is a natural process and is something that a normal organism is capable of sustaining, on its own, in the natural order of things. Life is an activity – and an ability to sustain that activity. When the life processes cease and the organism loses the capability of resuming them, it is dead. Nothing in the ordinary concept of death constrains the possibilities when there is supernatural or human intervention (3) into the condition of a dead or dying organism. What was once incapable of sustaining life processes on its own might, with profound restorative intervention, become capable of sustaining those processes again.

The ordinary concept of death is not removed from other ordinary concepts of natural endings. That a city be destroyed does not preclude its being rebuilt – perhaps a rebuilding which is a perfect restoration of the original using the original parts. Such a restoration may be indistinguishable from a state of affairs in which the destruction of the city never occurred. That an individual cathedral is demolished, as in wartime bombing, does not preclude its being put back together again. These destructive phenomena are not ordinarily reversed, but they are not *irreversible*. That a car ‘dies’ and the engine no longer runs certainly does not mean that it will never run again (but does suggest that it will not run again without intervention). The running of an internal combustion engine is a process which the engine is capable of sustaining. Once the process ends, the engine cannot restore itself to the running state; it ‘dies’. The ordinary concept of death seems to be univocal with these other cessations of function and in no way to preclude resumption of function if there is

extraordinary intervention, particularly into the internal condition of the system.

The ordinary concept of death apparently then involves two necessary conditions, one is occurrent, having to do with the present level of activity of the system, while the other is dispositional. A being is dead if it both (a) does not currently display essential processes and (b) is incapable of resuming them itself in the ordinary course of nature conducive to its lifeform. Dormant plants may meet condition (a) yet fail to satisfy (b); an animal dependent on a mechanical respirator meets condition (b) but fails to satisfy (a). Finally, an animal which meets both (a) and (b) is dead – even if it could be restored to life, say by injection of epinephrine into the heart.

The core of the second condition in my analysis of the ordinary concept is that the being ceases to be capable of itself maintaining its essential functions. Condition (b) is complicated by the qualification ‘in the ordinary course of nature conducive to its lifeform’, that complication is a clarification of the form of incapacity involved. This clause is required because the ordinary course of nature may not involve the conditions conducive to a being’s lifeform. For example, an amphibian may live in a region of protracted dry seasons. Such an amphibian may bury itself and become dormant, not dead, in the dry period. A natural change, such as a boulder rolling to cover the site, may result in there never again being at that particular place sufficient moisture for the amphibian to revive. As I understand the ordinary concept of death, the poor amphibian is as good as dead but is not actually dead as long as it still retains the capacity to revive were the rains to reach it. This is so even if the rains never come. Death is the loss of that vital capacity. But even the dead might live again, given internal structural alteration of their bodies produced by human or divine intervention.

Conclusion

The incorporation of an irreversibility condition in a definition of death departs undesirably from the ordinary concept in an attempt to make once and forever what is not necessarily once and forever. Current technology, and even more so projectable future technology, has created the secular possibility of restoring the dead to life. The irreversibility condition in revisionary medical definitions of death conceals an important ambiguity. On the most plausible construal, in which ‘irreversible’ means ‘can never be reversed’, the condition produces a much stronger concept of death than the ordinary, with conditions which are more difficult to satisfy and thus with the epistemic difficulty that it is much more difficult to determine with any certainty that a loss of function is irreversible in this strong sense. This is not the intent of the revisionary definitions, and so incorporation of the irreversibility condition is undesirable on this count. The weaker concept is like the ordinary in that it logically admits the possibility of future reversal, but

then it raises all the moral problems of the obligations doctors and others may well have to the deceased who might yet regain life. And as the Dr X scenario shows, this reading of irreversible has the odd consequence that patients can be dead one minute and alive the next, without any change in their physical condition. If 'irreversible' merely means I/we can't reverse a loss of function *now*, then I/we may well have responsibilities to care (intensively?) for the body of the deceased until someone who *can* reverse the condition comes along, especially if it appears likely that such reversal may become possible at some time in the future.

Thus the irreversibility condition, advocated in an attempt to clarify moral concerns, appears to trade on an ambiguity between strong and weak senses of 'irreversible', seeking to obtain the certainty of the weak sense while securing the freedom from moral responsibility of the strong sense: it is relatively simple to determine if someone suffers loss of function that we cannot now reverse (weak sense) but we are absolved from moral obligation to care for the body only if the condition will not ever be reversible (strong sense) – which is difficult to determine. Yet it is not that we need to devise additional *new* concepts of person and death to keep pace; the ordinary concept, with its emphasis on what is natural and what the organism itself cannot reverse is preferable to its revisions. It merely forces us to confront the moral issues surrounding death (4).

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Notes

- (1) As in the 1968 report of the Ad Hoc Committee of the Harvard Medical School, and in the 1984 discussion of the Universal Determination of Death Act reported to the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research.
 - (2) And, as Alvin Goldman has pointed out in a classic paper, *Actions, predictions, and books of life*, *American philosophical quarterly* V 1968 Jul: 135–151, there are logical problems with precise predictions of future discoveries – one cannot correctly predict anything of the form 'it will first be discovered at t that p', where t is future, for such a prediction itself constitutes discovery and so would pre-empt any future act.
 - (3) To say that something is unnatural or is intervention is *not* to say that it is undesirable. Some doctors have sought to perceive their activities as extensions of the natural, as nature's helpers – but that is not accurate. In general, doctors are interveners, attempting to prevent what would or might occur naturally. In the course of nature, humans are crippled by polio, die of severed arteries, etc. The utility of the doctor is as intervener, one who will prevent, will interfere with, what would have occurred naturally. Perhaps doctors have sought to resist this fact about their role, and this is reflected in medical definitions of death. The medical definition attempts to extend the ordinary concept of death – a cessation of life function which will not naturally be reversed – to become a cessation of life function which *cannot* be reversed, even by the most extraordinary and unnatural intervention, at any time now or in the future. Clearly this goes far beyond the ordinary concept.
 - (4) Thanks to comments by David Mayo, George Seybolt, and numerous participants in my presentation at the 1989 Pacific Division meetings of the American Philosophical Association.
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