

A HOLISTIC UNDERSTANDING OF DEATH: ONTOLOGICAL AND MEDICAL CONSIDERATIONS

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Abstract. In the ongoing ‘brain death’ controversy, there has been a constant push for the use of the ‘higher brain’ formulation as the criterion for the determination of death on the grounds that brain-dead individuals are no longer human beings because of their irreversible loss of consciousness and mental functions. This essay demonstrates that such a position flows from a Lockean view of human persons. Compared to the ‘consciousness-related definition of death,’ the substance view is superior, especially because it provides a holistic vision of the human person, and coheres with the perennial axiom about the ‘whole and parts.’

Keywords: death, brain death, substance view, Lockean view, whole and parts, holism.

Since the 1968 publication of the Harvard Ad Hoc Committee introducing irreversible coma (*le coma dépassé*) as the neurological standard for the determination of death,¹ the controversy over this criterion has remained unrelenting. The current medico-legal practice of the neurological standard is underpinned by the ‘whole brain death (BD)’ paradigm, asserting that individuals who meet the criteria of the neurological standard are biologically dead. Several philosophical rationales have been advanced to justify this claim.² Since the 1990s, numerous publications have demonstrated the untenability of ‘whole BD,’ both at the empirical and conceptual levels.³ Nevertheless, in the interests of organ transplantation, current medical and legal policies continue to maintain the view that brain-dead (BD) individuals are dead. A contributing factor to this *status quo* is the implicit

¹ Ad Hoc Committee of the Harvard Medical School (1968).

² The two main rationales in defense of ‘whole BD’ (also referred to as total brain failure) include: (i) the theory of the brain as the master somatic integrator of the human being – a theory advanced by Bernat in 1981 and adopted in the same year by the U.S. President’s Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, and (ii) the fundamental vital work theory advanced in 2008 by the U.S. President’s Council on Bioethics. More recently, Moschella has advanced a revised rationale for the neurological standard – one which is basically a hybrid of the aforementioned theories. For further details on the respective rationales, see Bernat (2006); Bernat et al. (1981); Moschella (2016); President’s Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research (1981); President’s Council on Bioethics (2008).

³ Most notable in this regard is the research by Shewmon, especially Shewmon (1999, 2001, 2012).

shift toward the 'higher BD' view.⁴ This view, of which there are divergent philosophical forms, insists on a sharp distinction between the human person and human organism, and therefore, a distinction between their respective deaths. In this issue of *Diametros*, John Lizza reaffirms his long-held 'higher BD' position, asserting that "the irreversible loss of consciousness and every other mental function [is] the criterion for determining [human] death."⁵ Most of the ideas presented in his current paper can be found in Lizza's earlier publications. In particular, his claim that BD patients are biological artifacts and not human beings,⁶ is a reiteration of his earlier statement in 2006:

A person cannot persist through the loss of all brain function or even the loss of just those brain functions required for consciousness and other mental functions. [...] What remains alive must be a different sort of being [...] distinct from a person, [...] such as a "humanoid" or "biological artifact," by which I mean a living being that has human characteristics but falls short of being human, a form of life created by medical technology. [...] Whereas a person is normally transformed into a corpse at his or her death, technology has intervened in this natural process and has made it possible for the person to die in new ways. Instead of a person's death resulting in remains in the form of an inanimate corpse, a person's remains can now take the form of a living being devoid of the capacity for consciousness and any other mental function.⁷

Lizza argues that his claim about BD patients is justified on the grounds that the nature of living things (human beings included) demands an *ontological* (metaphysical) discourse.⁸ His current paper, however, consists mainly of an exegesis of some contemporary scholars (such as Shewmon and Condic) as a way to justify his thesis. The paper provides no ontological discussion even though this is a fundamental element in the BD debate and end-of-life ethics. For this reason, this essay will include an ontological discussion, namely, the divergent views about human persons. First, however, I will indicate the overt difficulties raised by Shewmon's and Condic's arguments which Lizza quotes amply in order to buttress his thesis. Since Lizza claims (in his earlier writings) that his thesis rests on the substance view of human persons, I will discuss what the substance view re-

⁴ Lock (2002): 107-110; Schumacher (2016): 1255-1257; Nair-Collins, Miller (2017).

⁵ Lizza (2018): 3.

⁶ *Ibidem*: 3, 16.

⁷ Lizza (2006): 15.

⁸ Lizza (2018): 3, 12, 14.

fers to, and contrast it with the Lockean view. It will then become self-evident that Lizza's thesis rests on the Lockean view, and not on the substance view. I will defend the substance view by showing that, with respect to the determination of death, this view is more coherent than the 'consciousness-related definition of death.'

1. Difficulties with Shewmon's and Condic's Paradigms

According to his essay, Lizza's distinction between the death of the human person and that of the human organism finds both an echo and support in Shewmon's linguistic analysis of the term 'death' and the resulting 'semantic bisection' of the concept of death.⁹ Shewmon's paradigm of bisection distinguishes two moments (or events) of death: passing away (civil death) versus deanimation (ontological death) – "the first [refers to] when someone exits life; the second [...] when they can no longer be revived."¹⁰ Shewmon's paradigm hinges on the distinction between permanence and irreversibility.¹¹ Difficulties with Shewmon's ideas are immediately evident, however. First, how does one differentiate between permanent and irreversible? "Irreversibility as such is not an empirical concept."¹² Moreover, it also raises the practical "questions of 'By whom?', 'When?', and 'Under what circumstances?'"¹³ In applying the idea of irreversibility to the loss of consciousness, an additional difficulty arises: consciousness refers not just to the *level* of consciousness but, more importantly, the *experience* of consciousness, i.e., awareness. "Awareness is a deeply private matter inaccessible to observation by third parties," however.¹⁴ Moreover, neuroscience research has yet to identify "the neural underpinnings of consciousness."¹⁵ All these difficulties thus raise the question: in what way can the irreversible loss of consciousness be determined, so as to permit us to declare that a patient is no longer a human person, and therefore dead?

A second difficulty with Shewmon's paradigm is what exactly is the difference between 'when one exits life' and 'when one can no longer be revived?' As Shewmon points out, a successful resuscitation means that the patient has not

⁹ Ibidem: 5–8; Shewmon (2004, 2010).

¹⁰ Shewmon (2010): 276.

¹¹ Ibidem.

¹² Byrne, O'Reilly, Quay (1979): 1988.

¹³ Cole (1993): 148. For a detailed discussion on irreversibility, see Nguyen (2017a): 99–126.

¹⁴ Zeman (2006): 371.

¹⁵ Jensen, Overgaard (2011).

passed away. In other words, the question is what is the difference between an unsuccessful resuscitation and the fact that the patient can no longer be revived? Moreover, if by the term 'life,' we mean "a dynamism or movement from within oneself, which is an essential mark of life,"¹⁶ then the moment 'when one exits life' necessarily coincides with 'deanimation.'

The above brief discussion should help us to realize that death is a reality (a natural phenomenon), the nature of which is mind-independent. "The world is what it is regardless of what anyone says or thinks about it," and that world includes phenomena such as life, death, diseases, and all natural things from inorganic matter to human persons.¹⁷ These natural entities, unlike our words and concepts, "are not dependent on use by a linguistic community nor are they open to revision or stipulation;"¹⁸ This is why, in discussing death, it is critical not to confuse "metaphysics and semantics: *death*, the phenomenon, is to be discovered and explained, not defined or stipulated. It is only the word 'death' that bears definition."¹⁹ Hence, changing the definition of death, expanding "our vocabulary of death,"²⁰ or making "a semantic bisection of the concept of death,"²¹ does not change death (the phenomenon) into what we want it to be. Our "theories [about death or human persons] are either true or false depending on whether or not they correspond to reality as it is."²²

Lizza also invokes Condic's work, according to which the "two clear criteria of human life [are] persistence of human function [and] persistence of global autonomous integration of vital functions."²³ As part of her thesis that BD patients are dead, Condic introduces a distinction between 'integration' and 'coordination,' asserting that, in postnatal human life, "integration [...] is uniquely accomplished by the nervous system, most especially the brain."²⁴ Condic argues that the biological activities exhibited by the BD patient, though very similar if not identical to those manifested by the same patient prior to the diagnosis of BD, merely represent coordination between nonintegrated cells and tissues. Condic thus asserts

¹⁶ Seifert (1997): 12.

¹⁷ Nair-Collins (2010): 669. Death is therefore not dependent on values or cultural presuppositions.

¹⁸ Ibidem: 671. To the extent that our concepts reflect reality, to that extent they approximate the truth about the nature of natural phenomena and things.

¹⁹ Ibidem.

²⁰ Shewmon (2004): 277.

²¹ Shewmon (2010): 256.

²² Nair-Collins (2010): 669.

²³ Condic (2016): 264.

²⁴ Ibidem: 271.

that BD bodies are analogous to *in vitro* cell cultures.²⁵ As Brugger points out, however, “to argue that because X [BD bodies] and Y [cell cultures] are similar, and Y is not Z [living human beings], therefore X is not Z, is fallacious. It would only be sound if X and Y were identical.”²⁶ Condic’s thesis is fraught with difficulties.²⁷ Suffice it to indicate here that cell cultures on their own are not capable of maintaining the environmental conditions (“temperature, pH, [...] and waste metabolite removal”) necessary for their growth; such maintenance requires the use of bioreactors.²⁸ In contrast, BD bodies are capable of performing diverse functions, including the maintenance of homeostatic conditions and the elimination of waste, among others.²⁹

A more serious difficulty arises when Condic’s thesis is applied to patients with high spinal cord injury (HSCI). HSCI bodies (below the level of the injury) are functionally equivalent to BD bodies.³⁰ Hence, any theory which defends BD must also give a coherent account of HSCI. According to Condic, HSCI patients are alive, yet they “are no longer functioning as organisms, [...] [they] have ceased to autonomously integrate the biologic function of parts at the level required to sustain the life of the body as a whole.”³¹ In other words, HSCI patients are alive but their bodies below the neck are not living bodies. According to the law of thermodynamics, however, any such unintegrated biological system would quickly undergo putrefaction and decay even if supported by the most aggressive medical technology.³² Why then do HSCI bodies not show any signs of deterioration?

2. Two Divergent Views about Human Persons

According to Lizza’s own words in his 2006 work, the ‘consciousness-related definition of death,’ which he advocates, “rests on a substantive view of

²⁵ Ibidem: 258, 259, 265; Lizza (2018): 13.

²⁶ Brugger (2016): 338.

²⁷ For a detailed critique of Condic’s theory, see Nguyen (2017a): 167–174.

²⁸ Haycock (2011): 6.

²⁹ For a non-exhaustive list of holistic functions which BD patients are capable of performing, see Shewmon (2001): 467–469.

³⁰ Shewmon (1999).

³¹ Condic (2016): 268.

³² For the same reason, the claim that “a perfused artificially supported amputated arm could demonstrate wound healing” is scientifically unfounded; Lizza (2018): 13. Veatch made this claim without providing any reference. Wound healing (e.g., a superficial cut of the skin) takes several days. An *ex vivo* organ, e.g., a kidney destined for transplant, can be kept viable by special measures for up to 24 hours at the most, see Guibert et al. (2011). Moreover, an *ex vivo* organ is a non-functional organ.

personhood,"³³ a view also held by the Catholic tradition and encapsulated in Boethius's formulation of the person as "an individual substance of a rational nature."³⁴ Lizza cites Strawson and Wiggins as his primary source on the substance view.³⁵

What does the notion 'substance view' refer to? In Strawson's writings, this refers to the notion that a person is: (i) a whole which is prior to its consciousness,³⁶ and (ii) the bearer of predicates; these include states of consciousness and bodily characteristics which Strawson labels as 'P' and 'M' predicates, respectively.³⁷ As such, each "predicate gets its meaning from the whole" and not vice versa.³⁸ Holding a similar view to Strawson, Wiggins specifies further that "P-predicates, properly understood, are a subset of M-predicates [...] [since] the character of a person is not independent of his or her physiognomy and this physiognomy can scarcely be independent of the body."³⁹ These concepts, formulated by Strawson and Wiggins in contemporary language, basically reiterate two fundamental notions long-held in classical philosophy. First is the perennial axiom of 'whole and parts,' according to which: (i) an organic whole is greater than the sum of its parts, (ii) the parts get their existence and meaning from the whole, and (iii) consequently, no part can account for the whole. Second are the Aristotelian-Thomistic notions of substance and accidents – accidents are properties or attributes which can change over the course of the existence of the living being in question.

As noted above, a person is a whole, a bearer of predicates. Translated into classical language, this corresponds to the notion of substance; the latter in turn corresponds to the contemporary biophilosophical notion of 'organism as a whole.'⁴⁰ A substance is that which "bears accidental properties and exists as

³³ Lizza (2006): 41.

³⁴ *Ibidem*.

³⁵ *Ibidem*: 52–62.

³⁶ Strawson (1964a): 103, (1964b): 390.

³⁷ Strawson (1964a): 102, 104, (1964b): 388, 391.

³⁸ Strawson (1964a): 110, (1964b): 397.

³⁹ Wiggins (2001): 235.

⁴⁰ It should be noted that we are dealing here with primitive notions (person, substance, and 'organism as a whole') which cannot be defined, but only grasped and described. Regarding the primitiveness of the notion of the person, see Strawson (1964b): 388, 390–392, 396, and 402. The notion of 'organism as a whole' indicates that the living entity retains its identity and continues to function despite having lost some of its parts and/or requiring external artificial support (e.g., the ventilator). For a detailed description of the organism as a whole see Nguyen (2017a): 5–56.

a deeply unified whole that is ontologically prior to its parts.”⁴¹ The “properties are deeply unified and *related internally* as part of the essential nature of” the particular substance in question,⁴² in this case, the human person. Thus, in the classical view, person and substance are inseparable, like two sides of the same coin, or two different ways of speaking about the same whole, the living being belonging to the human species. “If the being [the person] persists as the same individual throughout a process of change, it is the substance which is the abiding, unifying center of the being across time.”⁴³ As such, substance is that which grounds the identity of the individual as he/she undergoes accidental changes. One such accidental change is the acquisition of brain functioning (and then consciousness) during fetal development,⁴⁴ or the loss of brain functions and consciousness because of a severe brain injury.

From the above brief discussion, it is clear that the substance view of human persons is a holistic view in which the person, the whole, cannot be reduced to any of its distinctive properties (whether mental or organismic) even if that property (namely, consciousness and cognitive functions) is the most noble and most distinguishing characteristic separating humans from other animal species. As noted above, in the substance view, mental and organismic properties, though distinct from one another, are nevertheless related to one another as a unity; they are not split asunder from one another as in the Cartesian or Lockean view. The holistic nature of the substance view is the reason why, in this view, the loss of consciousness cannot be equated to the loss of personhood, let alone death. Here lies the serious incoherence of Lizza’s claim that the ‘consciousness-related definition of death’ “rests on a substantive view of personhood,”⁴⁵ when in fact it does not.

On which philosophy does the ‘consciousness-related definition of death’ rest? It is a known fact that

[...] the influence of the thoughts of Descartes and Locke is deeply entrenched in Western society [...] [such that] many of the positions in contemporary bioethics

⁴¹ Moreland, Mitchell (1995): 50.

⁴² *Ibidem*.

⁴³ Clarke (1994): 105.

⁴⁴ For a detailed discussion on the ontogenesis of the brain and the acquisition of consciousness, see Korein (1997): 13–20. *In utero* embryonic-fetal development is a continuum from the one cell zygote stage to the human being at birth. The brain also continues to develop after birth. The obvious question is: at which stage during the neural development do ‘brain life’ and/or consciousness begin?

⁴⁵ Lizza (2006): 41.

debates, are either appropriations or derivations of the views of Descartes and Locke with regard to the human person.⁴⁶

The one writing of Locke which has an impact on current bioethical issues is chapter 27 of his *Essay Concerning Human Understanding*. According to Locke, to be a person is to be “a thinking intelligent being that has reason and reflection, and can consider itself as itself, the same thinking thing, in different times and places.”⁴⁷ As an empiricist, Locke basically excludes the notion of substance from consideration, and greatly exalts consciousness as the one sufficient and necessary condition to constitute a person.⁴⁸ Consequently, in the Lockean view, irreversible loss of consciousness signifies that the person in question no longer exists, even though all the other properties (M-predicates, in Strawson’s terminology) remain unchanged. Thus, compared to the aforementioned substance view, the Lockean view of personhood rests not on the metaphysical nature of the human person as a whole, but solely on a specific property of that whole, namely, consciousness which is split asunder from the rest of the body, as if the latter did not exist. In sum, in Locke’s theory of human persons, a particular part (predicate, property) can account for the whole. Such a methodology, however, contradicts the aforementioned perennial axiom about the ‘whole and parts.’

Lizza’s thesis of the ‘consciousness-related definition of death’ mirrors Locke’s exaltation of consciousness. Thus, contrary to his claim, Lizza’s thesis is not grounded in the substance view of human persons, but in the Lockean view instead.⁴⁹

On this Lockean foundation, Lizza further asserts that, regarding patients in whom the material basis of cognitive function is destroyed, “there is an implied consensus among philosophers of the Western tradition that these entities are not persons.”⁵⁰ Lizza thus indicates that “even if certain life functions remain in what

⁴⁶ Nguyen (2017a): 313.

⁴⁷ Locke (1975): b. II, ch. 27, p. 9.

⁴⁸ Locke makes this explicit in his thought experiment, in which consciousness is connected with the little finger. If the latter is cut off from the rest of the body, consciousness will “go along with the little finger, and leave the rest of the body; [...] the little finger would be the person, the same person [...] [who] then would have nothing to do with the body.” Ibidem: b. II, ch. 27, p. 17.

⁴⁹ Wiggin’s writings prior to 2001 followed a Lockean view; see Wiggins (1980): Wiggins’s writings since 2001 no longer hold such a view. Recognizing “the persisting conceptual importance [...] of Aristotle’s biology and philosophy of life,” Wiggins now follows the substance view. See Wiggins (2001): xi.

⁵⁰ Lizza (2006): 33. Lizza’s claim of an implied consensus is problematic. If there were such a consensus, then why do we have unrelenting controversies regarding beginning-of-life and end-of-life issues?

was once the organic body of a human being or human person, those remains cannot be identified with the human being or human person.”⁵¹ Note that, in making this assertion which basically distinguishes persons from organisms, Lizza is appealing to an implied consensus. Appealing to a majority or consensus, is an *argumentum ad populum*, however. Since the purpose of any philosophical discourse is the search for truth, an *argumentum ad populum* carries no weight, especially when it is also recognized as one of the fallacies in logic.

3. A Defense of the Substance View with Respect to the Determination of Death

As shown above, the substance view of human persons and the Lockean view stand opposite to one another; the former respects the axiom of ‘whole and parts’ which reflects the reality of natural living things as they are, whereas the second contradicts the axiom itself. No common ground exists between the two views. Nevertheless, since both impact on the medical issue of death, it is possible to evaluate them from the medical perspective, both at the philosophical and the practical level.

As stated by Lizza, “death is a change in kind.”⁵² In Scholastic terms, this metaphysical aspect of death is referred to as a substantial change. A discussion on this topic necessitates some additional review of the classical Aristotelian-Thomistic notion of substance, especially since Lizza claims to follow the substance view of persons (even though, as shown above, he does not). Ontologically, a substance is the hylomorphic union of matter and form. The form is immaterial, and the first principle which *actualizes* matter to make it the organic body of a living being of a particular kind.⁵³ The verb ‘actualize’ indicates that this first principle, which is also a dynamic principle, is that which organizes and integrates the body to be what it is. As such, the form is the principle of somatic integration. Moreover, “it is because of this first principle that living things have life.”⁵⁴ Aristotle’s technical term for this principle of life which distinguishes living beings (plants, animals, human persons) from non-living things, is ‘soul.’ To reiterate, the form, the soul, the principle of somatic integration, and the principle of life, are different ways of designating the same immaterial ‘entity’ which: (i) makes the human person what he/she is, as the bearer of specific mental and bodily properties, and (ii) maintains that human person alive. Consequently, as long as life still

⁵¹ Lizza (2018): 3.

⁵² Lizza (2006): 33.

⁵³ Aristotle (2002): 412a416–419.

⁵⁴ Ibidem: 413b411.

remains in the human person (the substance in question), a substantial change has not yet occurred.

In what way can we know that life still remains in the human person? In the holistic substance view, life encompasses a diversity of activities ranging from vegetative activities, sentience, and locomotion, to consciousness and intellectual activities.⁵⁵ In human persons, the vegetative and sensitive-locomotive activities are performed in a human way, i.e., different from the way they are in animals. A person is alive “if but one of the [activities] is present.”⁵⁶ The aforementioned categories of activities are manifestations of three corresponding distinct powers of the soul: vegetative, sensitive-locomotive, and intellectual. They are not discrete ‘parts’ of the soul in the quantitative sense, however. The soul is *one*, and its powers relate to one another in a strict ontological hierarchy in which the lowest (yet, most fundamental) power is the required precondition for the existence of the higher powers.⁵⁷ Because nutrition is necessary for every living thing, the most fundamental power of the soul, by virtue of which any living thing has life, is the vegetative power.⁵⁸ Its presence does not depend on the presence of the sensitive or intellectual power, whereas both of these depend on the vegetative. Hence, by itself, vegetative power is a necessary and sufficient condition to indicate that the principle of life (the form, the soul) still remains in the human person, however sick or close to death that person might be. This in turn means that a substantial change, a transformation from a living person to a corpse, has not yet occurred.

In the substance view, a substantial change takes place when the form (the life principle) is no longer present in what was once the human person (a substance). The once living body is now a corpse. “A corpse will unfailingly putrefy and disintegrate. The process begins within minutes of death.”⁵⁹ Corresponding to the metaphysical notion of substantial change is this very phenomenon of relentless disintegration. As such, death is both a metaphysical and a biological event, “an instantaneous qualitative jump,”⁶⁰ in which the process of biological disintegration, which sets in immediately at death, gives concrete signs that the person is

⁵⁵ Ibidem: 413a423–425.

⁵⁶ Ibidem: 413a422.

⁵⁷ Leunissen (2007): 142.

⁵⁸ Aristotle (2002): 415a424–425.

⁵⁹ The details of this process are described in Cantor (2010): 76–77.

⁶⁰ Ramellini (2009): 45.

truly dead. The difference between a living body and a corpse is analogous to the difference between real human eyes (in a living person) and the eyes of a statue.⁶¹

In contrast to the substance view, the 'consciousness-related definition of death' insists that "if a person suffers a brain injury that destroys any potential for consciousness and other mental functions, the person's life is over. The person has died."⁶² To the objections that BD patients exhibit overt vegetative activities (e.g., they continue to respire, maintain internal homeostasis, assimilate nutrients, and eliminate waste, among others),⁶³ and that a significant number of them exhibit spontaneous movements or reflexes to noxious stimuli (e.g., the removal of the ventilator),⁶⁴ Lizza gives a two-fold argument: (i) "technology has enabled us to intervene in the process by which a human being is normally transformed into an inanimate corpse at death,"⁶⁵ and (ii) "while [BD] bodies are alive in some sense, they are not human beings or human persons. They are not one of us."⁶⁶ The first part basically claims that the signs of life present in BD bodies are caused by medical technology, namely the ventilator. The second part asserts that a substantial change has occurred such that BD bodies, though alive, are no longer of the human species but belong to some unspecified or unknown species, i.e., a form of life created by medical technology.⁶⁷ These arguments, however, present serious difficulties.

The first claim is indefensible because it contradicts the metaphysical principle of *proportionate causality* which states that whatever is present in an effect must also be in some way in its cause. It is basic medical knowledge that

[...] the ventilator does only two things: (1) expand the lungs in lieu of the intercostal muscles and the diaphragm, and (2) pump oxygenated air into the lungs. By virtue of its design, the ventilator has no role to play in the exchange of oxygen and carbon dioxide (which takes place in the lungs and in all the organs and tissues throughout the body), pushing the blood through the vascular system, or in

⁶¹ Ibidem: 412b411–426. Without the form (the life principle), a dead body is a body in name only. The precise terminology for such a homonymous body is 'corpse' or 'cadaver,' and not body.

⁶² Lizza (2018): 4.

⁶³ See fn. 29.

⁶⁴ Saposnik, Basile, Young (2009); Saposnik et al. (2000).

⁶⁵ Lizza (2018): 3.

⁶⁶ Ibidem.

⁶⁷ Lizza (2006): 15

any of the many vegetative activities that are still ongoing in the body of “brain dead” patients.⁶⁸

Consequently, it is scientifically and metaphysically impossible for the ventilator to have the power to account for the very complex effect of “keep[ing] the body integrated and working as a unitary whole.”⁶⁹ In other words, “the ventilator and other technological tools are instruments of *life support*, which means that they can only work if there is still some life present in the individual.”⁷⁰

Is it metaphysically possible, as asserted by Lizza, that BD bodies, although alive, are non-human bodies because they have undergone a substantial change? The notion of substantial change is part and parcel of the substance view. As mentioned earlier, a substance is the bearer of accidents (properties, attributes). In Scholastic terms, an accident is that which *inheres* in another (a substance), i.e., an accident cannot exist on its own. Substance is thus the necessary *substratum* (or *subiectum*) which accounts for the existence of and gives meaning to accidents. In a substantial change, the whole original *substratum* disappears as it undergoes a transformation into a different kind of entity. Consequently, none of the original properties can remain. If BD patients have indeed undergone a substantial change and transformed into a non-human organism, then how does one explain “that the so-called non-human organisms harbor organs composed of matter perfectly well-disposed for transplantation into humans?”⁷¹ Moreover, how does one explain that these non-human organisms continue to perform vegetative activities *in a human way*, including gestation? If BD female patients were no longer human beings, how could they retain the capacity to gestate a human being in their wombs until the moment when that baby can be safely delivered and survive after birth? In other words, short of a divine intervention, it is impossible for the accidents (which are proper to the species) to persist in existence when the original *subiectum* no longer exists after a substantial change.

The ‘non-human’ argument rests on the idea that the destruction of a (purported) essential property – in this case, consciousness and mental functions – implies that the body is no longer disposed for the human form (the soul).⁷² Since this issue has been treated in ample detail elsewhere, it will not be reproduced

⁶⁸ Nguyen (2017b).

⁶⁹ Accad (2015): 224.

⁷⁰ Ibidem.

⁷¹ Ibidem: 228.

⁷² Ibidem: 226.

here.⁷³ Suffice it to say that such an idea is not only a misinterpretation of the key principles of hylomorphism, but also contradicts the principle of *agere sequitur esse*: the human person must come into existence first before he/she can develop consciousness and think, and not vice versa. The soul (the form) is the principle of life, whereas consciousness and mental activities are manifestations of the intellectual power of the soul. In BD, the soul can no longer manifest its intellectual power because its instrument, the brain, is seriously defective. It does not follow from this that the soul is no longer in the BD patient and that he/she has undergone a substantial change, however. The '*agere sequitur esse*' principle also means that we know what a thing is by what it does. Hence, if BD bodies manifest vegetative activities in a human way, identical to that of every other human person, then the conclusion is that BD bodies are living human bodies. To claim otherwise contradicts the principle '*agere sequitur esse*,' and thus amounts to an exercise against reason.

The claim that BD bodies, though living, are non-human entities, is also scientifically unfounded. This can easily be proven by the following experiment: (1) do a genetic analysis on the patient when he/she is still alive; (2) after the diagnosis of BD, do the same genetic analysis on the BD body (the so-called remains of that patient); (3) compare the results of the two genetic analyses. I contend that the results will be identical.

In addition to the aforementioned difficulties, both at the metaphysical and medical-scientific level, the 'consciousness-related definition of death' also raises a practical difficulty regarding the determination of death itself. Irrespective of the criteria used for the determination of death, it is common knowledge that it is impossible to determine the exact moment of death, not only because the soul is immaterial and because death is "an instantaneous qualitative jump,"⁷⁴ but also because of "our incomplete knowledge of the possible revival times in general and in the individual case."⁷⁵ Thus, we cannot know when death exactly occurs in a person, we can only know (by certain definitive and consistent physical signs) that death has already occurred. However, if consciousness were to be used as the criterion for the determination of death, it would bring with it an unsurmountable practical difficulty. The reason for this has to do with the nature of consciousness itself.

⁷³ Ibidem: 225–227; Nguyen (2017a): 273–283.

⁷⁴ See fn. 60.

⁷⁵ Pontén (1986): 93.

Consciousness is an ambiguous and multifaceted concept, with at least three dimensions: (i) consciousness as waking state, (ii) consciousness as experience, namely, a perceptual awareness, or (iii) consciousness as intentional state, i.e., “any mental state with propositional content”⁷⁶ such as thoughts, beliefs, desires, and volitions, among others.⁷⁷ Consciousness, in the sense of waking state refers to the *level* of consciousness, which can range anywhere from wakefulness to coma. Objective criteria, such as the criteria of the Glasgow coma scale, can be used to establish various levels of consciousness. However, the second and third dimension of consciousness refer to the *contents* of consciousness. As such, consciousness is a first-person experience; it “is qualitative, subjective, and intimately private,”⁷⁸ and therefore essentially inaccessible to third-party observers. A further critical aspect regarding consciousness is that the “phenomena of wakefulness and awareness do not always run in parallel.”⁷⁹ Since wakefulness by itself does not constitute consciousness, the fact that a person is unarousable by means of painful stimuli does not necessarily mean that he/she is not conscious (that he/she is not aware). Indeed, patients with severe brain injury may be conscious (aware), but unable to produce a motor response to manifest their awareness.⁸⁰ Here lies the unsurmountable practical difficulty of using the ‘consciousness-related definition of death’ in clinical practice: if consciousness (in the sense of experience and mental state) is deeply private and inaccessible to clinical assessment by any diagnostic tool, then in what way can we determine with certainty that a patient has irreversible loss of consciousness (and therefore has died)?

In contrast, in the substance view, even if it is not possible to determine the exact moment of death, there are nevertheless definitive physical signs to indicate that the person has *truly* died. One of the signs is that the temperature of the corpse rapidly drops to the level of the ambient temperature. Here, it is worthwhile to review the following series of phenomena which immediately set in as soon as the form (the soul, the principle of life) is no longer with the once-living body:

⁷⁶ Zeman, Grayling, Cowey (1997): 549. See also Zeman (2001): 1265, (2006): 359.

⁷⁷ *Ibidem*.

⁷⁸ Nguyen (2017a): 154.

⁷⁹ Zeman (2006): 371. Based on current diagnostic tools, patients in permanent vegetative state are awake but they are not aware.

⁸⁰ A case in point is Zack Dunlap, a 21 year-old man who was declared BD 36 hours after flipping his four-wheeler ATV in March 2008. He subsequently recovered, however. Though declared BD, the patient heard what was being said about him (the claim that he was dead), but was physically unable to react. See ‘Dead’ man recovering after ATV accident, http://www.nbcnews.com/id/23768436/ns/dateline_nbc-newsmakers/t/dead-man-recovering-after-atv-accident.

After true death, a corpse will unfailingly putrefy and disintegrate. *The process begins within minutes of death.* [...] Blood drains from the surface capillaries and enters the deeper veins, leaving the skin paler than in life. [...] Within a couple of hours, [...] blood accumulates in the lower body parts, creating there a purple discoloration known as 'livor mortis.' [...] The discoloration disappears in the embalming process when blood is drained from the corpse. Within forty-eight hours a greenish black palette of bacteria growth appears on patches of skin. [...] Putrefaction – the dissolution of the corpse into liquids and gases generally begins within minutes of death and becomes noticeable within two to three days. [...] The microbial action of the bacteria, together with the destructive enzymes flowing from cell breakdown, gradually liquefies soft tissue. Organs are the first parts to liquefy, starting with the eyes and proceeding to the brain, stomach, and liver. [...] Higher temperatures speed up the decay process, while lower temperatures retard it. Artificial interventions such as chilling, freezing, or embalming delay decay [italics added – D.N.].⁸¹

The above series of physical phenomena reflects the unstoppable increase in entropy, the hallmark of death. Because clinical medicine is an empirical science, the medical assessment of life versus death necessarily relies on physical signs; it cannot rely on non-physical phenomenon such as consciousness. On the basis of the aforementioned known physical phenomena which occur at death, it is not possible to declare someone dead when he/she still exhibits the signs of life. As discussed earlier, man-made life support devices are only effective when there is still life in the patient, however close to death he/she might be. Therefore, BD patients on life support are still alive; a substantial change has not yet occurred.

In conclusion, as shown in this essay, a discussion about death necessitates a clear distinction between metaphysics and semantics, so that it may be recognized that death (the phenomenon) is independent of our minds, and therefore independent of our values, interests, and culture. This is further confirmed by the fact that death is a universal occurrence, affecting every human person and non-human living being across space and time. Thus, the determination of death, while it can be improved (albeit only up to a certain point) by medical knowledge, is not something that depends on or varies with the social or cultural context – for if it were so, then a patient who is recognized to be alive in country X could be declared dead across the border in country Y. Much of the discussion of this essay revolves around the metaphysical dimensions of 'what is life?' and 'what is a hu-

⁸¹ Cantor (2010): 76-77.

man person?’ since these are indispensable elements in any discourse on death. The starting point for the metaphysical discussion is Lizza’s own claim that the ‘consciousness-related definition of death’ (the ‘higher BD’ position) is based on the substance view of human persons. The substance view, in fact, does not support such a definition. Compared to the Lockean-derived ‘consciousness-related definition of death,’ the substantive view is superior on several counts. First, it is in accord with the perennial axiom about ‘whole and parts,’ which states that the organic whole accounts for the parts, and not vice versa. As such, the substantive view provides a holistic view of human persons in which consciousness is not split asunder from the body as in the Lockean view. Second, the substance view coheres with the principle *agere sequitur esse*, namely that existence precedes consciousness, and not vice versa. Third, the substance view gives a coherent account about substantial change, a concept which directly touches upon the topic of life and death. It is an account fully confirmed by the reality of the empirical medical evidence, including genetic studies if these are to be carried out. As a result, unlike the ‘consciousness-related definition of death,’ the substance view does not have to resort to the indefensible assertion that life-support measures (especially the ventilator) ‘mask death.’ Fourth, precisely because the substance view is holistic, integrating both the physical and non-physical dimensions of the human person, there are certain definite physical signs which permit us to recognize that a person has truly died. This cannot be achieved with the ‘consciousness-related definition of death,’ however, because consciousness is a non-physical and intimately private first-person phenomenon. Therefore, however popular Lizza’s thesis might be, death cannot be declared merely on the basis of the irreversible loss of consciousness and mental functions.

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