

## Seemingly Alive: Full-brain Death Is Death

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### **ABSTRACT**

According to the Thomistic Hylomorphic approach to the human person, I argue that full-brain death results in the substantial corruption of the human being, or in other words, full-brain death sufficiently renders the body unfit to be informed by the rational soul. In like manner, I consider objections originating from philosophers who take on the Thomistic Hylomorphic approach to the human person, since among such hylomorphists there is disagreement as to whether full-brain death is sufficient for rendering the matter unfit for the soul or not. The argument I offer roughly goes as follows: according to Thomistic principles, if the body necessarily ceases to function as a unified whole with intrinsic finality after full-brain death occurs, then, according to Thomistic Hylomorphism, full-brain death sufficiently renders the matter unfit for the soul. I then show that the body does necessarily cease to function as a unified whole with intrinsic finality after full-brain death occurs by drawing from Dr. James Bernat's medical experience and research. Consequently, I conclude that according to Thomistic Hylomorphism, full-brain death sufficiently renders the matter unfit for the soul, or in other words, full-brain death results in the death of the human being. I then consider objections from and provide responses to two advocates of the Circulatory/Reparatory theory, who hold that as long as the circulation of oxygenated nutrient-rich blood continues, the matter retains its proper disposition for the soul and thereby constitutes that the human being is still present, even if the circulation is maintained via machines and pharmacotherapy. The soundness of my argumentation brings with it bioethical implications with regard to organ harvesting and donation, as well as a bearing upon when it becomes morally acceptable to terminate 'life support,' since, if any organized brain activity remains, even in the brain-stem alone, then there is still a human person present and alive.

### **KEYWORDS**

Full-brain Death, Hylomorphism, Substance, Accident, Prime Matter, Substantial Form, Accidental Form

## I. INTRODUCTION

In this paper I will argue that full-brain death results in the substantial corruption of the human being, or in other words, full-brain death renders the body unfit to be informed by the rational soul according to Thomistic Hylomorphic principles. Likewise, I will consider objections originating from philosophers who take on the Thomistic approach to the human person, since among such hylomorphists there is disagreement as to whether full-brain death is sufficient for rendering the matter unfit for the soul or not. I will argue as an advocate of the position which holds full-brain death as sufficient to render the matter unfit for the soul.<sup>1</sup>

For St. Thomas Aquinas, the death of the human person occurs when the substantial form, the soul, is separated from the matter, namely, the body due to the matter becoming unfit to be informed by the soul. As stated by Jason Eberl, Aquinas holds the rational soul to be the “principle of the body’s (1) existence (esse), (2) unified organic functioning, and (3) specific nature as a ‘human’ body” (Eberl 2006, 44). Due to the first two ways in which the soul acts as principle of the body, Aquinas believes that to live can be taken in two distinct senses, saying, “In one, it means the very act of existence of that which is living, which rests on the union of the soul to the body as its form. In the other sense, ‘to live’ is taken to mean the activity of life” (Aquinas 13th Century, XIII.4.ad 2.). Accordingly, death can be taken in two senses as well, in one sense as the separation of the soul from the body and in the other as the cessation of the operations of life. Aquinas sees these two interpretations of death as transpiring coincidentally, since “the principle of a thing’s unity is the same as that of its being; for one[ness] is consequent upon being” (Aquinas 13th Century, II.58.5). Subsequently, when the soul ceases to inform the matter and thereby ceases to give it existence, the body will soon dissolve, since it no longer has an intrinsic unifying principle. Consequently, when “the body is no longer able to actualize [even] the soul’s vegetative capacities” (Eberl 2006, 45) death has occurred and no intrinsically directed functions remain

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1. After presenting at the University of Michigan-Flint Philosophy Conference on Cognition and Neuroethics, I came to understand that I ought to explain better what I mean by “full-brain death.” I -do spell out exactly what I mean by full-brain death, however, for most this definition is easily confused with being in a vegetative state. Thus, I think it would be good for me to clarify right from the start that by “full-brain death,” I mean the death of the whole brain and this is distinct from a vegetative state because, one who is in a vegetative state still has a functioning brainstem, while one who is fully brain-dead does not.

between the organs. In summary, Aquinas teaches that death occurs when the matter, losing the active capacity to actualize even the soul's vegetative powers, becomes unfit to be informed by the soul which results in the body's loss of an intrinsic finality that is apt of a unified whole.

According to the abovementioned principles, I argue that full-brain death is indeed a sufficient criterion for rendering the matter unfit to be informed by the soul. The argument states that after full-brain death the body or corpse no longer functions as a unified whole. However, if the aforementioned is true, then full-brain death is sufficient for rendering the matter unfit to be informed by the soul. Thus, it follows via *modus ponens* that full-brain death is sufficient for rendering the matter unfit to be informed by the soul.

## II. MAIN ARGUMENT

Now I will formally present the main argument of this paper and employ Aquinas' hylomorphic principles to support its premises. Whether or not these principles are true is irrelevant for the soundness of my argument, since I am simply arguing that according to the Thomistic Hylomorphic view of the person, full-brain death is a sufficient criterion for rendering the matter unfit for the soul.<sup>2</sup> The argument formally goes as follows.

1. If the body necessarily ceases to function as a unified whole with intrinsic finality after full-brain death occurs, then, according to Thomistic Hylomorphism, full-brain death sufficiently renders the matter unfit for the soul.
2. It is the case that the body necessarily ceases to function as a unified whole with intrinsic finality after full-brain death occurs.

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2. It became clear at the conference that many people are not familiar with Thomistic thought and they thereby found my conclusion to be too narrow. A helpful suggestion was given to me with regard to my thesis in order to help it bear more weight, namely to mention that the Thomistic account of human persistence conditions does a better job than the other accounts of the human person (ie. Psychological theory, animalist theory...etc.), and if people wanted reasons as to why that is the case they could bring that up during the Q&A time.

3. Therefore, according to Thomistic Hylomorphism, full-brain death sufficiently renders the matter unfit for the soul.  
(Modus Ponens 1&2)

In support of premise one I assert that if the body necessarily ceases to function as a unified whole with intrinsic finality, that is if it no longer has functions being actualized by an internal source of movement, after full-brain death occurs, then the soul has ceased to inform the body. Jason Eberl asserts, "When the union of a rational soul and its body is dissolved, the dissolution of the body's unified organic functioning immediately follows" (Eberl 2006, 44) since as Aquinas states, "If that which holds the individual contrary parts together is removed, they tend toward what is fitting to them according to nature, and thus the dissolution of the body is brought about" (Aquinas 13th Century, XXV.6 reply). Thus, when the body ceases to function as a unified whole with intrinsic finality, it follows that the soul no longer informs the body. Yet, the soul continues to inform the body as long as the matter is fit for the soul, since it is only "with the cessation of the requisite dispositions," namely the active capacities to carry out vegetative functions, that "a form cannot remain in the matter" (Aquinas 13th Century, XIV. ad 20). Thus, it follows via hypothetical syllogism that if full-brain death necessarily leaves the body without unity and intrinsic finality, then it is sufficient for rendering the matter unfit for the soul.

On behalf of premise two, James Bernat M.D., in defending whole-brain death as a sufficient criterion for death, demonstrates how all necessary critical functions for life are tied to the brain, saying, "Destruction of a critical array of neurons within the 'whole' brain...is necessary for death because: 1) the vital functions of respiration and control of circulation are subserved by the brain stem; 2) the critical integrative functions are subserved by the brain stem and hypothalamus; and 3) the wakefulness component of consciousness is subserved by the brain stem and the awareness component of consciousness by the thalamus and cerebral cortex" (Bernat 1998, 18). Thus, since all of the critical functions necessary for the life of an organism, including those of the vegetative type, are contingent upon the functioning of the brain, it follows that after full-brain death has occurred, which refers to "the complete cessation of all organized neurological activity throughout the entire brain, including the cerebrum, cerebellum, and brain stem," (NCBE 2014 FAQ) the circulation of blood, the respiratory system, and all other vitally integrative functions among the organs

necessarily cease to operate in a unified and intrinsically directed way. This necessary cessation of integrative function entails that after full-brain death the body no longer has the capacity to act as a unified whole with some intrinsic principle of finality. Thus, it follows from premises one and two via Modus Ponens that according to Thomistic Hylomorphism, full-brain death sufficiently renders the matter unfit for the soul.

### III. OBJECTIONS AND RESPONSES

Here I will consider objections to my main argument and provide responses to them. The objections I will consider come from Dr. Mark Spencer and Alan Shewmon M.D. who advocate the circulatory/respiratory theory, which states that the matter remains fit for the soul as long as the circulation of oxygenated nutrient-rich blood continues. Both stand in opposition to the second premise of my main argument which asserts that the body ceases to function as a unified whole with intrinsic finality after full-brain death has occurred.<sup>3</sup>

The first objection I consider is from Dr. Spencer. He concludes from the circulatory/respiratory theory that the body does not necessarily cease to function as a unified whole with intrinsic finality after full-brain death occurs. I take his argument to go as follows:

1. The body continues to function as a unified whole with intrinsic finality as long as the circulation of oxygenated nutrient-rich blood continues.
2. If the body continues to function as a unified whole with intrinsic finality as long as the circulation of oxygenated nutrient-rich blood continues, then the body does not necessarily cease to function as a unified whole with intrinsic finality after full-brain death occurs.

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3. Though there is a third view held among Hylomorphists asserting that higher-brain death by itself is a sufficient criterion for rendering the matter unfit for the soul, it does not have any bearing upon my argument, since if the higher-brain is sufficient, then the whole brain is sufficient as well.

## compos mentis

3. Therefore, the body does not necessarily cease to function as a unified whole with intrinsic finality after full-brain death occurs. (Modus Ponens 1&2).

In support of premise one, Spencer makes reference to Aquinas' belief in a primary organ, asserting, "It is the organ that provides the motive power and the vital disposition necessary for all the organs to be alive by moving the necessary 'vital heat' and 'spirits,'" thus it appears that what is necessary for the matter to remain disposed for the soul is not the heart itself, but what the heart provides, namely, 'vital heat' and 'spirits', which today "can, due to their connection with breath, be equated in modern terms with oxygenated nutrient-rich blood" (Spencer 2010, 864). Furthermore, Spencer claims that due to technology allowing for circulation to continue after full-brain death has occurred, the body thereby retains its proper disposition for the soul and therefore is informed by the soul even after full-brain death occurs. Spencer concludes that "the fluid that [the heart] moves is thus a vegetative function," and accordingly, the body continues to function as a unified whole with intrinsic finality (Spencer 2010, 861).

Premise two is supported by the same principles that support the first premise of my main argument above (see section II Paragraph 2). If there is still a unified whole with intrinsic finality present, then it follows that the soul is still informing the matter. Yet, if that's the case after full-brain death has occurred, then the body does not necessarily cease to function as a unified whole with intrinsic finality after full-brain death occurs. Thus, it follows via Hypothetical Syllogism that if there is still a unified whole with intrinsic finality present after full-brain death, then the body does not necessarily cease to function as a unified whole with intrinsic finality after full-brain death occurs. Therefore, Spencer's conclusion follows via Modus Ponens from premises one and two.

In response to Spencer I reject premise one. Though I do concede that the circulation of oxygenated nutrient-rich blood is necessary for the continuation of life in most instances, I do not think it is sufficient for maintaining life after full-brain death occurs. I hold that after full-brain death occurs all intrinsically directed activity ceases, and thus, there is no longer a living organism present. The response goes as follows:

1. If the body continues to function as a unified whole with intrinsic finality as long as the circulation of oxygenated

nutrient-rich blood continues, then the organism will maintain activity that is intrinsically directed.

2. The organism does not maintain activity that is intrinsically directed.
3. Therefore, the body does not continue to function as a unified whole with intrinsic finality as long as the circulation of oxygenated nutrient-rich blood continues. (Modus Tollens From 1&2).

Dr. Spencer's claim itself stands in support of premise one:

Thus, some activity of the body must be able to be attributed to an internal source; there must be some activity of the whole organism that cannot be entirely explained in terms of external forces, such as the operations of a machine, if the organism is to be considered alive and still informed by the same soul it had when it was uncontroversially alive. (Spencer 2010, 866)

Thus, if the organism is still informed by the soul, as would be the case if it continues to function as a unified whole with intrinsic finality, then at least some activity or function of the organism is going to be intrinsically directed.

In defense of Premise two of my response, I argue that the apparent integrative activities such as "bodily growth, maintenance of homeostasis, digestion, excretion, and the fighting of diseases" (Spencer 2010, 866) do not result from the organism's functioning as a unified whole with intrinsic finality. What remains after full-brain death has occurred is completely dependent upon mechanical and pharmacological support, and thus, as claimed by Eberl, "The assumption of such functions by life-support machinery indicates that the body has lost the capacity to perform them under its own control" (Eberl 2006, 57). Thus, the body does not have continued metabolic function attributable to an internal source. Furthermore, since the machine regulates the actions of the organs, "such functions can be understood as emerging from the interaction of a body's organ systems without entailing that the body has the integrative unity required for it to compose an individual substance that is *unum simpliciter* with a

single substantial form" (Eberl 2006, 58). Thus, it follows from premises one and two via Modus Tollens that the body does not continue to function as a unified whole with intrinsic finality as long as the circulation of oxygenated nutrient-rich blood continues.

The second objection comes from Shewmon, who offers a counter example to the assertion that the body necessarily ceases to function as a unified whole with intrinsic finality after full-brain death occurs. Shewmon founds his example upon the assumption that the brain only acts as modulator of the integrative somatic functions in the body, and consequently is not necessary for them if artificial life support and pharmacotherapy are provided. I take his counter example to go as follows:

1. If a nutritive environment within the uterus of a fully brain-dead mother can be maintained until the fetus comes to term, then the body does not necessarily cease to function as a unified whole with intrinsic finality after full-brain death occurs.
2. A nutritive environment within the uterus of a fully brain-dead mother can be maintained until the fetus comes to term.
3. Therefore, the body does not necessarily cease to function as a unified whole with intrinsic finality after full-brain death occurs. (Modus Ponens 1&2)

In defense of his first premise, Shewmon responds to Corrado Manni who claims that such a woman acts only as a "biological incubator;" asserting that his description "does injustice to the complex, teleological, organism-level, physiological changes of pregnancy (weight gain, internal redistribution of blood flow favoring the uterus, immunologic tolerance toward the fetus, etc.), which occur despite the absence of brain function" (Eberl 2006, 55). Accordingly, Shewmon concludes that such processes could never occur if the organism were not alive and acting as a unified whole with intrinsic finality. Thus, if a fully brain-dead mother can bring a fetus to term, then the body does not necessarily cease to function as a unified whole with intrinsic finality after full-brain death occurs.



The case of Robyn Benson, of Victoria, British Columbia, proves premise two to be true. This woman suffered a brain hemorrhage and became fully brain-dead while she was 22 weeks pregnant, and the doctors kept her body 'alive' for 6 weeks until the baby was born premature, but still healthy. Thus, Shewmon's conclusion would seem to follow from premises one and two via Modus Ponens.

In response to Shewmon's objection I refute premise one, since the conditional statement on which his argument rests is flawed. That which maintains the nutritive uterus is not actually the mother, but the doctors who are using machines and medicine to do the work. My response goes as follows:

1. If the conditional in premise one of Shewmon's objection is true, then the mother's body should have at least some intrinsically directed metabolic function that is not caused by mechanical and pharmacological intervention.
2. The mother's body does not have at least some intrinsically directed metabolic function that is not caused by mechanical and pharmacological intervention.
3. Therefore, the conditional in premise one of Shewmon's objection is false. (Modus Tollens 1&2).

For support of premise one of my response see Section One Paragraph two, which states that a living thing has a soul which brings about some intrinsically directed functions.

In support of premise two, Eberl reveals that the fully brain-dead mother's body requires extensive work in order to maintain a properly nutritive uterus. Sighting Dr. Field, Eberl shows that the body of a 27-year-old fully brain-dead mother required "mechanical ventilation, vasopressors to treat fluid-resistant hypotension, warming or cooling blankets to treat temperature lability, nutritional support, replacement hormones to treat endocrine abnormalities, aggressive surveillance for and treatment of infections, and heparin prophylaxis," and furthermore, "maximum effort was directed at treating the severe hypotension, temperature fluctuations, diabetes insipidus, hypothyroidism, and cortisol deficiency that were thought to be the result of the autoregulatory function of the brain" (Eberl 2006, 57). Appropriately, the aforementioned evidence for the

extensiveness of the treatment necessary to provide a nutritive uterus makes it difficult to see how any intrinsically directed metabolic functions are being carried out. Rather, I assert that after full-brain death occurs, such functions are the result of mechanical and pharmacological influence that extrinsically impose finality upon the organs so that they work together to carry out metabolic functions, just as the parts of a watch work together to tell time. Thus, from premises one and two the falsehood of Shewmon's first premise follows via Modus Tollens, since the antecedent of his conditional can be true without the consequent being true.

#### **IV. CONCLUSION**

In conclusion, recall that I have presented Aquinas' approach to human death, which holds the soul to be the principle both of existence and of mover, and accordingly, it follows that when the soul separates from the body, the matter ceases to be intrinsically directed toward the actualization of its metabolic or vegetative functions. Furthermore, once the matter stops having the active capacity to actualize even the vegetative powers, the matter has become unfit for the soul and death occurs. Consequently, due to its effects, I concluded that full-brain death is a sufficient criterion for rendering the matter unfit for the soul. Next I considered objections from both Dr. Mark Spencer and Alan Shewmon who, advocating the circulatory/respiratory theory, attempt to disprove that the body necessarily loses its functional unity and intrinsic finality after full-brain death occurs. Yet in response to these arguments I demonstrated how fully brain-dead patients are not actually carrying out vegetative metabolic functions, but rather such functions are the result of the organ systems interacting with one another due to the influence of external machinery and medicine. Thus, I conclude that after full-brain death occurs, there is no longer any intrinsically directed functions being carried out by the body, but only functions under extrinsically imposed finality, and subsequently, full-brain death is a sufficient criterion for rendering the matter unfit for the soul.

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