

# Reduce, Reuse, or Recycle?

Animalism vs. Thomistic Hylomorphism

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## Reduce, Reuse, or Recycle? Animalism vs. Thomistic Hylomorphism

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Animalism and Thomistic hylomorphism share a lot of common ground. 2 The primary disagreement between the two is Thomistic hylomorphism's 3 claim that every human animal possesses an immaterial part, a rational 4 soul, which serves as the metaphysical ground for her identity over time. 5 In this paper, I argue that Thomistic hylomorphism's commitment to 6 a non-reductionist, further fact theory of personal identity over time allows it to avoid two major worries for animalism: the problem of inde-8 terminacy and the problem of fission. This leaves animalists with a kind c of dilemma: either forego reductionism and reconceptualize the conti-10 nuity of a human organism's life in non-reductionist terms, in which 11 case animalism turns out to be not very different at all from a kind of hylomorphism, or continue to conceptualize the continuity of a human organism's life in reductionist terms, in which case Thomistic hylomor-14 phism has the advantage over animalism in that it avoids two major 15 worries for its closest competitor. 16

### 17 1. Introduction

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Animalism is the view according to which we are human animals, or, 18 more precisely, that each of us is numerically identical to a particular human 19 organism. Animalism is often accompanied by three further claims: that we 20 are essentially human animals, that animals are wholly material, and that 21 we possess biological persistence conditions. To say that we are essentially 22 human animals is to say that we could never be anything other than the 23 animal we are. To say that animals are wholly material is to say that no animal 24 possesses any immaterial parts. To say that we possess biological persistence 25 conditions is to say that "one survives just in case one's purely animal functions 26 metabolism, the capacity to breathe and circulate one's blood, and the like – 27 continue."1 There are versions of animalism which deny one, two, or all three 28

1 Eric T. Olson, The Human Animal (Oxford: Oxford University Press, 1997): p. 16

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of these latter claims, but the view that I will consider here is the version 29 of animalism that accepts all four, which has come in the literature to be 30 known as "standard animalism"<sup>2</sup>, "strong animalism"<sup>3</sup>, "robust animalism"<sup>4</sup>, 31 "latter-day animalism"<sup>5</sup>, "the one true animalism"<sup>6</sup>, or simply, "the biological 32 approach"<sup>7</sup>. 33 According to Thomas Aquinas's hylomorphic understanding of the human 34 person, we are rational animals, or, more precisely, each of us is numerically 35 identical to a particular rational animal.<sup>8</sup> Like other composite material sub-36 stances, each of us is essentially composed of both matter and form. And like 37 other living composite material substances, each of us is essentially composed 38 of both body and soul.<sup>9</sup> The sort of form or soul that a human person possesses 39 is a rational soul, which serves as the source not only of the person's rational 40 capacities but also her more basic vegetative and sentient capacities.<sup>10</sup> The 41 rational soul is the primary principle of unity within the human person, bring-42 ing together her various parts and capacities into a unified, singularly acting 43 whole.<sup>11</sup> According to Thomistic hylomorphism, the rational soul unifies the 44 material parts of the human person by serving as the metaphysical ground 45 for their existence and identity. That each part exists, that it is the sort of 46 part that it is, and that it is the specific part that it is, are all grounded in the 47 existence, nature, and identity of the person's rational soul.<sup>12</sup> And the rational 48 2 Jeremy W. Skrzypek and Dominic Mangino, "Should Animalists be 'Transplanimalists'?", Ax-

- *iomathes*, Vol. 31, No. 1 (Apr., 2020): p. 106. 3 Eric T. Olson, "What Does it Mean to Say That We Are Animals?", *Journal of Consciousness*
- 3 Eric T. Olson, "What Does it Mean to Say That We Are Animals?", *Journal of Consciousness Studies*, Vol. 22, No. 11-12 (Jan., 2015): p. 98.
- 4 Matt Duncan, "Animalism is Either False or Uninteresting (Perhaps Both)", American Philosophical Quarterly, Vol. 58, No. 2 (Apr., 2021): pp. 187-200.
- 5 Patrick Toner, "Hylemorphism, Remnant Persons and Personhood", *Canadian Journal of Philosophy*, Vol. 44, No. 1 (Mar., 2014): p 76.
- 6 Allison Krile Thornton, "Varieties of Animalism", *Philosophy Compass*, Vol. 11, No. 9 (Sep., 2016): p. 516.
- 7 Olson, *The Human Animal*, pp. 16-21 and Chapter 6; Andrew M. Bailey, "Animalism", *Philosophy Compass*, Vol. 10, No. 12 (Dec., 2015): pp. 868-869.
- 8 "we say that a human being is a rational animal", Aquinas, *DEE*, Ch.1; "for any human being, insofar as he is a human being, it pertains to him to be both rational and animal, and whatever else falls under the definition of human being", Aquinas, *DEE*, Ch. 2. All references to the works of Aquinas are to the Latin versions of the texts available at http://www.corpusthomisticum.org/iopera.html. All English translations are my own.
- 9 See, for example, Aquinas, ST, I, Q. 75, Prologue and Aquinas, ST, I, Q. 76, A. 4.
- 10 See, for example, Aquinas, *ST*, I, Q. 76, A. 4.
- 11 See, for example, Aquinas, *ST*, I, Q. 76, A. 4 and A. 5.
- 12 This is perhaps the most striking and controversial aspect of Aquinas's hylomorphic theory of the human person. It entails that no material part of the human person can survive separation from

- <sup>49</sup> soul itself is united to the body not as an additional substance operating on
- <sup>50</sup> it from the outside, but as the formal principle that makes it the body that
- it is. On Aquinas's understanding of the human person, a human person is
- <sup>52</sup> not her soul, nor is she her body. Rather a human person is the one material <sup>53</sup> substance, the rational animal, composed of both.<sup>13</sup> And we persist by virtue
- substance, the rational animal, composed of both.<sup>45</sup> And we persist by virtue of the continued possession of the same rational soul, which is indicated
- by, but not reducible to, the continued presence of the various capacities to
- <sup>56</sup> which it normally gives rise.<sup>14</sup> According to Thomistic hylomorphism, the
- rational soul is also capable of surviving the death of the body, capable of
- <sup>58</sup> subsisting and supporting rational thought in a separated state.<sup>15</sup> And the
- <sup>59</sup> rational soul remains in this separated state until the resurrection, at which
- <sup>60</sup> point it is reunited with the body it earlier enformed.<sup>16</sup>
- Animalism and Thomistic hylomorphism share a lot of common ground.
- According to both, each of us is identical to a particular human animal. Ac-
- <sup>63</sup> cording to both, the one and only thinker of my thoughts is that animal.<sup>17</sup>

the whole. For a recent defense of this aspect of Aquinas's ontology, see Patrick Toner, "Emergent Substance", *Philosophical Studies*, Vol. 141, No. 3 (Dec., 2008): pp. 281-197. This particular aspect of Thomistic hylomorphism does not play a crucial role in the arguments presented in this essay, and so I will say no more about it in what follows. However, it is worth pointing out that, as a result of its commitment to this aspect of Aquinas's thought, Thomistic hylomorphism turns out to be a rather unique further fact theory of the human person. For, according to Thomistic hylomorphism, the rational soul is not something added to the material parts of the human person, but a deeper, underlying principle which is meant to explain the existence, nature, and identity of those parts.

- 13 See, for example, Aquinas, ST, I, Q. 75, A. 4.
- 14 For the claim that the soul is not reducible to any of its powers, see, for example, Aquinas, *ST*, I, Q. 77, A. 1. For a defense of the claim that, on a Thomistic understanding of the human person, human persons persist by virtue of the continued possession of the very same soul, the persistence of which is indicated by, but not reducible to, the continued presence of the various capacities to which it normally gives rise see, for example, Jason T. Eberl, *The Nature of Human Persons: Metaphysics and Bioethics* (Notre Dame, IN: University of Notre Dame Press, 2020).
- 15 See, for example, Aquinas, ST, I, Q. 75, A. 2.
- 16 Whether the *person* survives her death by virtue of the survival of her soul, or whether she must await the resurrection for any kind of personal afterlife, is a matter of some debate among recent proponents of Thomistic hylomorphism. And among those who think that the person does survive her death by virtue of the survival of her soul, there is further debate over whether the person ceases to be or remains a rational animal in such a state. Unfortunately, I do not have the space to explore this issue further here. But see Jeffrey E. Brower, *Aquinas's Ontology of the Material World* (Oxford: Oxford University Press, 2014): Chapter 13 for an excellent overview.
- 17 "neither the eye nor the hand can be said to subsist through itself, nor can either for that reason be said to operate through itself. Hence, the operation of the parts is attributed to the whole through each part. For we say that a human being sees with the eye, and feels with the hand, and not in the same sense as when we say that what is hot gives heat by its heat. For heat, strictly

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And, according to both, in most circumstances, our identity over time can 64 be tracked by following biological continuity. According to both animalism 65 and Thomistic hylomorphism, neither the at-work or in-hand capacity for 66 conscious self-reflection or any other psychological states or activities is re-67 quired for our identity over time, and this is so because neither is required for 68 the animal's identity over time. On both views, we are present whenever the 69 animal is. As a result, each of us was once an unthinking fetus, and each of 70 us could survive falling into a persistent vegetative state, but none of us could 71 ever become a lifeless corpse.<sup>18</sup> 72

So what, then, are the major disagreements between animalism and 73 Thomistic hylomorphism? Is animalism merely an updated, streamlined 74 hylomorphism? Is Thomistic hylomorphism merely a clunky, outdated 75 animalism? Some authors have argued that Thomistic hylomorphism's 76 emphasis on the rational soul as the source of its rational, sentient, and 77 vegetative capacities allows for more flexible persistence conditions for 78 human animals, perhaps allowing human animals to survive in certain 79 scenarios that they otherwise would not on animalism.<sup>19</sup> And so in that way 80 Thomistic hylomorphism could be seen as denying claim three above, the 81 claim that each of us possesses strict biological persistence conditions. But 82 the primary disagreement between animalism and Thomistic hylomorphism 83 is Thomistic hylomorphism's denial of claim two above. For, according to 84 Thomistic hylomorphism, every human animal possesses an immaterial 85 part: a rational soul. Indeed, every living thing possesses an immaterial 86 part. For, on a hylomorphic framework, all living organisms are essentially 87 composed of both matter and form, body and soul. Despite their significant 88

speaking, does not give heat. We may therefore say that the soul understands, as the eye sees, but it is more correct to say that a human being understands through the soul", Aquinas, *ST*, I, Q. 75, A. 2, Ad. 2. See also Aquinas, *ST*, I, Q. 76, A. 1, Co.

- 18 For a defense of the claim that, on a Thomistic understanding of the human person, each of us was once an unthinking fetus, each of us could survive falling into a persistent vegetative state, but none of us could ever become a lifeless corpse, see Patrick Toner, "Hylemorphic Animalism", *Philosophical Studies*, Vol. 155, No. 1 (Aug., 2011): pp. 65-81. The key move here is to say that while one needs to possess a capacity for rationality in order to be considered a rational animal, an active, natural capacity for rationality will do, where by active, natural capacity we mean being of the kind whose members typically develop the in-hand and at-work capacity for rationality. A fetus and a patient in a persistent vegetative state possess an active, natural capacity for rationality, whereas a corpse does not (for more on this see Eberl, *The Nature of Human Persons*, especially pp. 148-154).
- 19 See citations below.

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common ground, then, there are some key differences between animalism
 and Thomistic hylomorphism. Do those differences make a difference?
 Does Thomistic hylomorphism provide any theoretical advantages over
 animalism? Does animalism successfully avoid any serious concerns for
 Thomistic hylomorphism?
 Several contemporary advocates of Thomistic hylomorphism have recently

- <sup>95</sup> argued that because of the flexibility of its persistence conditions for human
- <sup>96</sup> animals, or because of its commitment to a further immaterial component to
- <sup>97</sup> the human person, or because of certain resources available within its larger
- <sup>98</sup> hylomorphic framework, Aquinas's hylomorphic theory of the human person
- <sup>99</sup> possesses an array of theoretical advantages over animalism.<sup>20</sup> In this paper, I
- It has been argued, for instance, that hylomorphism's account of substantial change takes the 20 sting out of the dead body problem (see Patrick Toner, "Hylemorphic Animalism", Philosophical Studies, Vol. 155, No. 1 (Aug., 2011): pp. 70-71), that Thomistic hylomorphism's unicity doctrine, according to which in any substance there is just one substantial form, and its Boethian account of personhood, according to which the term 'person' refers to "an individual substance of a rational nature", allow it to provide non-eliminativist solutions to the thinking parts and remnant person problems (see Toner, "Hylemorphic Animalism", pp. 71-71 and Patrick Toner, "St. Thomas Aquinas on the Problem of Too Many Thinkers", The Modern Schoolman, Vol. 89, No. 3-4 (Jul.-Oct., 2012): pp. 209-222 for a hylomorphic solution to the thinking parts problem; see Toner, "Hylomorphism, Remnant Persons, and Personhood" for a hylomorphic solution to the remnant person problem), that by grounding an innate, natural capacity for the development of overt psychological capacities in the person's substantial form, her rational soul, hylomorphism better captures the importance of these capacities for our continued identity over time and allows us to say that each of us is essentially a person (see Toner, "Hylomorphic Animalism", pp. 79-80; Jason T. Eberl, The Nature of Human Persons: Metaphysics and Bioethics (Notre Dame, IN: University of Notre Dame Press, 2020): pp. 19-20, 101-102, 138), that hylomorphism can accommodate both the transplant intuition, according to which we would go with our transplanted cerebrum, and the vegetable intuition, according to which we could survive falling into a persistent vegetative state (see David B. Hershenov, "A Hylomorphic Account of Thought Experiments Concerning Personal Identity", American Catholic Philosophical Quarterly, Vol. 82, No. 3. (Summer 2008): pp. 491-196; David B. Hershenov, "Soulless Organisms? Hylomorphism vs. Animalism", American Catholic Philosophical Quarterly, Vol. 85, No. 3 (Summer 2011): pp. 468-473; David B. Hershenov, "Evaluating Hylomorphism as a Hybrid Account of Personal Identity", Quaestiones Disputatae, Vol. 10, No. 2 (Spring 2020): pp. 96-102; Mark Spencer, "A Reexamination of the Hylomorphic Theory of Death", The Review of Metaphysics, Vol. 63, No. 4 (Jun., 2010): pp. 856-860; Eberl, The Nature of Human Persons, pp. 48-54), that hylomorphism may allow a human person to survive wholesale inorganic part replacement (see Hershenov, "A Hylomorphic Account of Thought Experiments Concerning Personal Identity", pp. 497-498), that hylomorphism allows for the possibility that a human person could survive the loss of functionality in her brainstem in those cases in which the higher brain retains its functionality (see Jason T. Eberl, "Dualist and Animalist Perspectives on Death: A Comparison with Aquinas", The National Catholic Bioethics Quarterly, Vol. 7, No. 3 (Autumn 2007): pp. 486-488), that the rational soul might be present in utero before the developing embryo meets the requisite biological conditions for individual

discuss two further advantages of Thomistic hylomorphism over animalism 100 which are based not primarily on any particular resources available within 101 its larger hylomorphic framework (such as its commitment to prime matter 102 or to the unicity of substantial form or to the subsistence of the rational 103 soul), nor its ability to offer alternative persistence conditions for human 104 animals, but on its commitment to a non-reductionist, further fact theory 105 of personal identity over time. I will argue that Thomistic hylomorphism's 106 commitment to a non-reductionist, further fact theory of personal identity 107 over time allows it to avoid two major concerns for reductionist theories: 108 the problem of indeterminacy and the problem of fission. Understood as a 109 reductionist theory of personal identity over time, animalism faces its own 110 versions of these two concerns. And so this leaves animalists with a kind of 111 dilemma: either forego reductionism and reconceptualize the continuity of a 112 human organism's life in non-reductionist terms to avoid the aforementioned 113 concerns, in which case animalism turns out to be not very different at all 114 from a kind of hylomorphism, or continue to conceptualize the continuity 115 of a human organism's life in reductionist terms, in which case Thomistic 116 hylomorphism has the advantage over animalism in that it avoids two major 117 concerns faced by its closest competitor. 118

# 2. Two Problems for Reductionist Theories of Personal Identity Over Time

A reductionist theory of personal identity over time is any theory that holds that personal identity consists in, and is thus reducible to, certain other more basic facts, facts which can be enumerated and specified without any explicit reference to the person whose identity is to be explained.<sup>21</sup> The most common reductionist theories are those that hold that personal identity consists in biological or psychological continuity and is thus reducible to certain other, more basic physical or mental facts. A non-reductionist theory of personal

living human organism (see Hershenov, "A Hylomorphic Account of Thought Experiments Concerning Personal Identity", pp. 500-501; David Hershenov and Rose J. Koch-Hershenov, "Fission and Confusion", *Christian Bioethics*, Vol. 12, No. 3 (Dec., 2006): pp. 246-249), and, finally, that hylomorphism's commitment to the subsistence of the rational soul better allows for the possibility of personal immortality in that may allow us to survive our deaths as *disembodied* rational animals (see Eberl, *The Nature of Human Persons*, pp. 98-103; Allison Krile Thornton, "Disembodied Animals", *American Philosophical Quarterly*, Vol. 56, No. 2 (Apr., 2019): pp. 203-217).

<sup>21</sup> In distinguishing between reductionist, non-reductionist, and further fact views, and in distinguishing between two types of further fact views, I'm drawing heavily here on Derek Parfit, *Reasons and Persons* (Oxford: Oxford University Press, 1984), especially pp. 210-213.

identity over time is any theory that denies that personal identity consists in, 128 and is thus reducible to, biological continuity, psychological continuity, or 129 any other physical or mental facts. According to non-reductionist theories, 130 the identity of a person consists in some further fact beyond her biology and 131 her psychology, such as the continued possession of an immaterial soul.<sup>22</sup> 132 Some non-reductionist, further fact theories identify the person with this 133 further fact, such as pure substance dualists who identify the person with 134 her immaterial soul. Other non-reductionist, further fact theories take this 135 further fact to be merely an additional part or aspect of the person, such as 136 compound substance dualists and hylomorphists, who identify the person 137 with a body/soul composite. 138

Reductionism about personal identity is, then, similar to, but distinct from, 139 certain other varieties of reductionism, such as reductionism about the mental. 140 according to which facts about the mental are reducible to physical facts, and 141 mereological reductionism, according to which facts about composite wholes 142 are reducible to facts about their parts. Importantly, one could be a reductionist 143 about personal identity without being a reductionist about the mental or 144 about parts and wholes. For example, animalism, a biological reductionist 145 theory of personal identity, is compatible with both property dualism (non-146 reductionism about the mental), and non-reductive physicalism (mereological 147 non-reductionism). 148

There are two well-known concerns faced by reductionist theories of personal identity over time: the problem of indeterminacy and the problem of fission.<sup>23</sup> First, reductionist theories must contend with the possibility that there might be cases in which it is indeterminate whether personal identity holds. There could be cases in which even after we identify all of the relevant physical or mental facts, it is still unclear whether or not the person has survived. The reason why reductionist theories of personal identity over time are

<sup>22</sup> Importantly, positing the existence of an immaterial soul is only one way of spelling out what this further fact might be. According to Lynne Rudder Baker, for example, the identity of a human person over time is determined by his or her continued possession of the very same first-person perspective, where a first-person perspective is irreducible to any other physical or mental facts about the person (see, Lynne Rudder Baker, "Personal Identity: A Not-So-Simple Simple View", in Georg Gasser and Matthias Stefan (eds.), *Personal Identity: Complex or Simple?* (Cambridge: Cambridge University Press, 2012): pp. 179-191.

<sup>23</sup> For some helpful discussions of these two standard objections to reductionist theories, see Georg Gasser and Matthias Stefan, "Introduction", in Gasser and Stefan, *Personal Identity: Complex or Simple?*, pp. 1-17 and Harold W. Noonan, *Personal Identity*, Third Edition (New York: Routledge, 2019): Chapters 6 and 7.

committed to the possibility of indeterminacy is precisely because they reduce 156 personal identity to biological or psychological continuity, to some more basic 157 set of physical or mental facts. The problem is that there will inevitably be 158 cases in which biological or psychological continuity is maintained only to a 159 certain degree or in which only some subset of the relevant physical or mental 160 facts continue to hold. And, in such cases, it will be unclear whether the 161 degree of continuity or the number of relevant facts maintained is sufficient 162 to maintain the identity of the person. 163

So, for example, let's say that personal identity consists in some kind of psy-164 chological continuity. Whether you survive any given scenario is determined 165 by whether the person at the other end of that scenario retains enough of your 166 psychology or whether that person's psychology retains a sufficient number 167 of causal connections to your own. But how much of your psychology must 168 be retained to maintain psychological continuity? How tight must the causal 169 connections be between your psychology and that later person's psychology 170 for you to be numerically identical to him or her? 171

Notice that the indeterminacy involved here is not merely epistemic. It 172 is not merely that we may, in some cases, be unable to reliably determine 173 whether the degree of continuity or the number of relevant facts maintained 174 is sufficient to maintain the identity of the person. If personal identity is 175 reducible to these more basic facts, then there is no further fact that we could 176 hope to discover which could determine whether the person has survived in 177 these sorts of cases. Any proposal specifying the degree of continuity that is 178 sufficient or the number of facts that need obtain would seem to be a matter 179 of mere stipulation, a matter of decision, not discovery. And that strikes 180 most of us as deeply counterintuitive. It seems that there really ought to be a 181 determinate answer in any possible scenario in which I could find myself as 182 to whether I will survive that scenario.24 183

The problem of fission begins with the observation that biological or psychological continuity, and the relevant physical or psychological facts which are said to constitute personal identity over time, could, in principle, be preserved or maintained along more than one path. So, for example, let's say

<sup>24</sup> As Derek Parfit, a key proponent of reductionism, himself admits: "When it is applied to ourselves, this Reductionist claim is hard to believe. In such imagined cases, something unusual is about to happen. But most of us are inclined to believe that, in any conceivable case, the question 'Am I about to die?' must have an answer. And we are inclined to believe that this answer must be either, and quite simply, Yes or No. Any future person must be either me, or someone else" (Parfit, *Reasons and Persons*, p. 214).

that personal identity consists in some kind of psychological continuity. Let's further suppose that if a human person's cerebrum, the principal organ which houses her psychology, were to be transplanted to another body, the human person would go with it. Finally, let's also suppose that each cerebral hemi-sphere contains exactly half of the person's psychology, or at least enough of that psychology to maintain her identity in the absence of the other.

Putting all of these suppositions together, let's now imagine that a human 194 person were to undergo a procedure in which her cerebrum were removed 195 from her body, split in two by carefully severing the corpus collosum, and 196 each half were successfully transplanted to another, cerebrum-less human 197 body. In such case, what will have happened to the human person with which 198 we began? Let A refer to the human person with which we began and B 199 and C refer to each of the recipients of its cerebral hemispheres. What is the 200 relationship between A, B, and C? Logically, it appears that we have four main 201 options: A is identical to both B and C, A is identical to B but not C, A is 202 identical to C but not B, or A is identical to neither B nor C. 203

Because B and C each contain exactly half of the person's psychology, or at 204 least enough of the person's psychology to maintain her identity in the absence 205 of the other, it seems that each is an equally good, or at least a sufficiently 206 good, candidate for being A. If each half really does contain just as much of 20. the person's psychology as the other, or enough of the person's psychology 208 to maintain her identity in the absence of the other, and if personal identity 209 is simply a matter of psychological continuity, then it is unclear how either 210 one of them could fail to be identical to A and the other succeed. It seems 211 that there would be no fact about either recipient which is not also true of the 212 other that could make one of them uniquely identical to A. 213

But it also seems implausible to say that A is identical to both B and C, and 214 for two reasons. First, because B and C could have incompatible properties. 215 For example, B could be clean-shaven and C could have a beard. But no one 216 person can be both clean-shaven and bearded at the same time. And if B kills 217 C, then A will be both dead and alive. But nothing can be both dead and alive at 218 the same time. Second, B and C cannot be identical to each other because they 219 will immediately have different mental states upon successful transplantation. 220 And the mental states in the one will not be accessible to the other. There 221 would be no psychological continuity between the two halves, and so, on 222 any view which holds that personal identity is reducible to psychological 223 continuity, they could not be the same person. 224

And so it seems that the only remaining option for the reductionist is to 225 say that A is identical to neither B nor C, that A has perished as a result of 226 the procedure. The problem with saying that A is identical to neither B nor 227 C, however, is that B and C both seem to have everything that it takes to be 228 identical to A. Each is psychologically continuous with A: the psychological 229 states of each maintain a kind of causal continuity with the psychological 230 states present in A. Indeed, if not for the other, it seems that B or C would 231 clearly be identical to A. So how could the presence of the other make it the 232 case that the one is not identical to A? In the words of Derek Parfit, "how 233 could a double success be a failure?"25 234

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### 3. Biological Reductionism

Animalism is typically understood as a reductionist theory of personal 236 identity over time, inasmuch as it holds that personal identity consists in, and 237 is thus reducible to, biological continuity.<sup>26</sup> According to animalism, each 238 of us is numerically identical to a particular human animal. The identity 239 of that animal over time consists in the continuity of its life. The life of an 240 animal consists in the causal continuity of various vital functions or metabolic 241 activities. And those vital functions and metabolic activities are understood as 242 reducible to more basic causal interactions between the smallest parts of that 243 animal. Consider, for example, Peter van Inwagen's animalism, according to 244 which the identity of any living organism is a function of the continuity of its 245 life and the continuity of an organism's life is a function of the "activity" of 246 its parts: 247

If an organism exists at a certain moment, then it exists whenever 248 and wherever - and only when and only where - the event that is 249 its life at that moment is occurring; more exactly, if the activity 250 of the xs at  $t_1$  constitutes a life, and the activity of the ys at  $t_2$ 251 constitutes a life, then the organism that the xs compose at  $t_1$ 252 is the organism that the ys compose at  $t_2$  if and only if the life 253 constituted by the activity of the xs at  $t_1$  is the life constituted by 254 the activity of the ys at  $t_2$ . Let us call this principle 'Life'.<sup>27</sup> 255

25 Ibid., p. 256.

<sup>26</sup> Recall that the sort of animalism that I am considering here is what is sometimes called "strong animalism", which holds not only that we are human animals, but also that we are essentially human animals, that animals are wholly material, and that we possess biological persistence conditions.

<sup>27</sup> Peter van Inwagen, Material Beings (Ithaca, NY: Cornell University Press, 1990): p. 145.

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What is this activity of which a life is constituted? van Inwagen tells us that "talking of the 'activities' of things in this sense is no more than a way of talking about the changes they undergo."<sup>28</sup> On van Inwagen's account, then, the identity of a human animal over time consists in the continuity of its life, and the life of an organism is understood as nothing more than "the sum of a great many chemical processes".<sup>29</sup>

Eric Olson offers a similar account. He also grounds the identity of any 262 living organism in the continuity of its life and the continuity of its life in 263 certain "vital functions" performed by its parts: "If x is an animal at t and y 264 exists at  $t^*$ , x = y if and only if the vital functions that y has at  $t^*$  are causally 265 continuous in the appropriate way with those that x has at t."<sup>30</sup> And, like van 266 Inwagen, Olson characterizes the life of an organism as "a special kind of 267 event, roughly the sum of the metabolic activities the organism's parts are 268 caught up in."31 269

Understood as a reductionist theory of personal identity over time, animal-270 ism is susceptible to the two major concerns for reductionist theories outlined 271 above. First, because it reduces personal identity to biological continuity, to 272 some more basic set of physical facts, it must also contend with the possibility 273 that there might be cases in which it is indeterminate whether personal iden-274 tity holds. According to animalism, the identity of a human animal over time 275 consists in the continuity of its life, in the continuity of certain vital functions 276 or metabolic activities. But how many of these vital functions or metabolic 277 activities must be retained in order to preserve the life of the organism? If 278 the vital functions or metabolic activities of a living human organism were to 279 be gradually reduced, at what point would the animal die? To borrow a case 280 from Olson, imagine that all of the organic parts of a living human animal's 281 brainstem were to be gradually replaced with inorganic substitutes, without 282 any interruption in the life processes orchestrated by that brainstem.<sup>32</sup> Olson 283 holds that no animal could survive complete inorganic part replacement or 284 even complete inorganic part replacement of the parts of its brainstem, the 285 control center for its coordinated biological functions.<sup>33</sup> And so at some point 286

<sup>28</sup> Ibid., p. 82.

<sup>29</sup> Ibid., p. 146.

<sup>30</sup> Olson, The Human Animal, p. 135

<sup>31</sup> Ibid., p. 136.

<sup>32</sup> Ibid., pp. 141-142.

<sup>33</sup> Ibid., pp. 125, 135.

in this gradual replacement process the animal will have died. But when will
 this have occurred?

Notice once again that the indeterminacy involved here is not merely epis-200 temic. It is not merely that we may, in some cases, be unable to reliably 290 determine whether the degree of biological continuity or the number of vital 291 functions or metabolic activities retained is sufficient to preserve the identity 292 of the person. If personal identity is reducible to these more basic facts, then 293 there is no further fact that we could hope to discover which could determine 294 whether the person has survived in these sorts of cases. Any proposal speci-295 fying the degree of biological continuity that is sufficient or the number of 296 physical facts that need obtain would seem to be a matter of mere stipulation, 297 a matter of decision, not discovery. As van Inwagen himself admits, 298

there could be a case in which, owing to it being indeterminate 299 whether the activity of certain objects constituted a life, it was 300 indeterminate whether a composite object was present. And there 30 could be a case in which, owing to its being indeterminate whether 302 a life now going on was the same event as a life that had been going 303 on at an earlier time, it was indeterminate whether a currently 304 existing composite object was the same object as one that had 305 existed at an earlier time. A metaphysic that has these implications 306 places its defenders in a rather difficult position.<sup>34</sup> 307

Second, concerning the problem of fission, while most fission cases are de-308 signed to problematize reductionist theories of personal over time that priori-309 tize psychological continuity, animalism, understood as a reductionist theory 310 of personal identity over time that prioritizes biological continuity, is also 311 susceptible to this problem.<sup>35</sup> I can think of at least four possible biological 312 fission cases which show this. Some of these cases are actual, some of them 313 physically possible, and some of them perhaps only metaphysically possible, 314 but they all illustrate the relevant difficulty. 315 The first case is the case of monozygotic twinning.<sup>36</sup> Monozygotic twinning

The first case is the case of monozygotic twinning.<sup>39</sup> Monozygotic twinning is the process by which identical twins come to be. Identical twins, unlike

<sup>34</sup> van Inwagen, Material Beings, p. 228.

<sup>35</sup> See also Anne Sophie Meincke, "Processual Animalism: Toward a Scientifically Informed Theory of Personal Identity", in Anne Sophie Meincke and John Dupre (eds.), *Biological Identity: Perspectives from Metaphysics and the Philosophy of Biology* (New York: Routledge, 2021): pp. 251-278.

<sup>36</sup> Olson discusses monozygotic twinning at pp. 90-93 of *The Human Animal*. Van Inwagen discusses it at pp. 152-154 of *Material Beings*.

<sup>318</sup> fraternal twins, can trace their history back to a single fertilized ovum or

zygote. On those rare occasions when a human zygote successfully "splits", 319 "divides", "separates", or "twins" early on in its development, the result is a 220 pair of identical twin human embryos. Now, if individual human organisms 321 begin to exist at or shortly after fertilization, then the zygote or early embryo 322 that twins is an individual human organism. But if the zygote or early embryo 323 that twins is an individual human organism, what happens to that organism 324 when it twins? Does its life end and is the result two new human organisms? 325 Does it carry on as one of the resulting embryos but not the other? Does it 326 carry on as both? 327

The second case is the case of brain-body separation.<sup>37</sup> Imagine that a living 328 human organism were to undergo a procedure in which several of its parts 329 were successively amputated in such a way that this did not significantly 330 impair the parts that remained. First the animal's arms are removed, then 331 its legs, then its lower torso, then its upper torso, then its neck, until all that 332 remains is its brain, the functionality of which, let us imagine, is retained 333 by some sort of external assistance. Could a human animal survive such an 334 operation and in such a condition? Several animalists have argued that a 335 human animal could indeed survive being reduced in this way to nothing 336 more than its brain, as long as its brain stem, the organ that serves as the 337 control center for its coordinated biological functions, remains intact and 338 functional.38 330

But Alan Shewmon has also argued that, in some cases, a human animal 340 can remain alive even after the loss of functionality in his or her brain stem, 341 that is, after total brain death.<sup>39</sup> So let's combine the two scenarios. Imagine 342 that a fully-functional adult human animal were to undergo a procedure in 343 which its whole brain were amputated in such a way that the functionality of 344 its brain stem was retained but in in which the various life processes carried 345 out in the rest of the body were also maintained. What would happen to the 346 original human animal in this case? Would it go with its amputated brain, 347 or would it survive the amputation of its brain in the body that remains? 348

<sup>37</sup> Olson discusses this sort of case in his "The Role of the Brainstem in Personal Identity", in Andreas Blank (ed.), *Animals: New Essays* (Munich: Philosophia Verlag, 2016): pp. 291-302.

<sup>38</sup> See, for example, van Inwagen, *Material Beings*, pp. 169-181 and Olson, *The Human Animal*, pp. 44-46, 131-135.

<sup>39</sup> See, for example, D. Alan Shewmon, "The Brain and Somatic Integration: Insights into the Standard Biological Rationale for Equating 'Brain Death' with Death", *The Journal of Medicine and Philosophy*, Vol. 26, No. 5 (Jan., 2001): pp. 457-478.

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Would its life end and would there now be two new human animals? Would it somehow survive as both, as a kind of scattered organism?

The third case is the case of whole-brain fission.<sup>40</sup> Let's suppose that a living human organism can survive being reduced to nothing more than its functioning brain. But since a functioning cerebrum is neither necessary nor sufficient for the identity of a human animal, what would really be doing the work here is the brainstem. So let's suppose that a human animal may be able to survive being reduced to nothing more than its brainstem.

Let's also suppose that a living human organism can survive the loss of functionality of part of its brainstem. Some of its life processes may be hindered or cease in that case, but let's suppose that a sufficient number of those life processes would remain to keep the animal alive. Could a human animal survive the loss of functionality in as much as half of its brainstem? That's unclear. But let's suppose that this is at least in principle possible. Let's suppose that a human animal could survive with half of a functioning brainstem.

Now, if a human animal can survive being reduced to nothing more than 364 its brainstem, and if a human animal could survive with half of a functioning 365 brainstem, we can run a double transplant fission case that plagues animalism 366 just as much as it plagues psychological approaches. Imagine a human animal 367 were to undergo a procedure in which its whole brain were removed, split right 368 down the middle in such a way that each half maintained enough functionality 369 to carry on a sufficient number of the animal's life processes to otherwise keep 370 it alive, and each half were successfully transplanted to a different, brain-less 371 body. What would happen to the original human animal in this case? Would 372 it go with one half of its brain rather than the other? Would the procedure 373 end the life of that animal? Or would the animal somehow survive in both 374 bodies, once again as a kind of scattered organism? 375

A fourth possible biological fission case comes from Christian Munthe:

Imagine that in a few hundred years humanity starts to colonise outer space and that, eventually, the colonisers on different planets gradually evolve biologically in quite different directions (due to different kinds of evolutionary pressure in differing environments). On one of these planets, natural selection leads to the result (after – say - 2,000,000 years) that humans on this particular planet actually procreate by division in a way similar to amoebas.

40 A similar case is described in Richard Swinburne, *Are We Bodies or Souls*? (Oxford: Oxford University Press, 2019): pp. 53-55.

However, in all relevant respects, they are still humans (they have our type of consciousness and physical features, and if their cells
 were to undergo meiosis, they would be able to procreate with us).<sup>41</sup>

While human animals do not currently reproduce asexually through binary fission, what Munthe's case asks us to consider is that it might be possible for human animals to come to have this capacity, either through environmental influences or through new technologies. And in such case it would be unclear what would happen to any human animal who reproduced in this way. Would it die in the process? Would it survive as one or the other of the human animals thereafter? Or would the life of that animal somehow continue on in both?

**4. Further Fact Solutions** 

There are two ways in which an animalist could respond to the problem of 396 indeterminacy. First, she could argue that there is some non-arbitrary point at 397 which the degree of biological continuity or the number of vital functions or 398 metabolic activities preserved is sufficient or insufficient to preserve the life 390 of a living organism. We may not know exactly what that non-arbitrary point 400 is, and, indeed, we may never be in a position to know it. But it is open to the 401 animalist to insist that there are facts in the world that make it metaphysical 402 determinate precisely what degree of biological continuity or what number of 403 vital functions or metabolic activities is sufficient or insufficient to preserve the 404 life of a living organism. However, it is hard to see what these metaphysically 405 determinate facts in the world might be. If personal identity is reducible to 406 certain more basic biological facts, and these facts hold to various degrees, 407 then it is hard to see what further fact we could hope to discover which could 408 determine the precise degree that is sufficient or insufficient to preserve the life 409 of a living organism. Once again, any proposal specifying the precise degree 410 of biological continuity that is sufficient or the precise number of biological 411 facts that need obtain would seem to be a matter of mere stipulation, a matter 412 of decision, not discovery. Until animalists are able to provide a principled 413 biological criterion by which we can resolve apparent cases of indeterminacy, 414 and which avoids these sorts of concerns, the problem remains. 415 The second way in which an animalist could respond to the problem of 416

indeterminacy would be to argue that the problem of indeterminacy is, in fact,
 inevitable, that no plausible view of identity over time evades its grip. van

<sup>41</sup> Christian Munthe, "Divisibility and the Moral Status of Embryos", *Bioethics*, Vol. 15, No. 5-6 (Oct., 2001): pp. 387-388.

Inwagen, for example, argues that metaphysical vagueness is a "consequence of any interesting Moderate answer to the Special Composition Question."
But, as we will see, non-reductionist, further fact theories of personal identity have the resources to address this issue. And so if the problem of indeterminacy is indeed a problem, as van Inwagen himself appears to admit, then that gives us reason to take seriously those other approaches.

I would like to propose that Thomistic hylomorphism has access to another 425 solution to the problem of indeterminacy not available to the animalist. Ac-426 cording to Thomistic hylomorphism, each of us is identical to a particular 427 rational animal, and a rational animal persists by virtue of the continued 428 possession of the same rational soul. While the presence and persistence of 429 the rational soul is indicated by the presence and persistence of the various 430 capacities to which it normally gives rise, including the various vital func-431 tions and metabolic activities which comprise biological continuity, it is not 432 reducible to those capacities. And so while biological continuity may admit of 433 degree, it is open to the Thomistic hylomorphist to insist that the continued 434 possession of the same rational soul does not. 435

In certain scenarios, it may be unclear whether the degree of biological 436 continuity maintained or the number of vital functions and metabolic pro-437 cesses retained are sufficient to preserve the organism's life. And if personal 438 identity consists in, and is thus reducible to, biological continuity, then it will 439 be unclear whether the identity of the person has been preserved. For the 440 Thomistic hylomorphist, however, any indeterminacy here would be merely 441 epistemic. According to Thomistic hylomorphism, even after we have fully 442 specified the exact degree of biological continuity maintained, and the exact 443 number of physical facts that continue to hold, there is still one further fact 444 to be accounted for: whether the person's substantial form, her rational soul, 445 continues to enform her body. And if forms or souls are mereologically sim-446 ple,<sup>43</sup> then it is impossible for the person's substantial form, her rational soul, 447 to be partially present or partially preserved over time. For the Thomistic hylo-448 morphist, whether the person's substantial form, her rational soul, continues 449 to exist and enform her body would be all or nothing. And thus personal 450 identity would be metaphysically determinate in every case, even if in some 451 cases it might be difficult or even impossible to know whether it in fact holds. 450 And that's one more move than the reductionist animalist can make. 453

<sup>42</sup> van Inwagen, Material Beings, p. 282.

<sup>43</sup> See Jeremy W. Skrzypek, "Thomas Aquinas and the Complex Simplicity of the Rational Soul", *European Journal of Philosophy*, Vol. 29, No. 4 (Dec., 2021): pp. 900-917 for more on this.

Turning, now to the problem of fission, there are also several wavs in 454 which animalists might respond to the cases that I've introduced. First, she 455 could argue that one or more of them is in principle impossible, that one 456 or more of them could never actually occur. Second, she could argue that 457 in any fission case the life of the human organism involved would undergo 458 such significant disruption that that life would necessarily cease, and any life 459 present afterward would be entirely new. Third, she could respond to each 460 case individually. In the case of monozygotic twinning, an animalist could 461 argue, and some do in fact argue, that prior to the point at which twinning 462 is no longer possible, there is no living human organism present and so no 463 human animal would undergo fission during the process of monozygotic 464 twinning.44 In the case of the brain-body fission, an animalist could argue, 465 and some do in fact argue, that no living human organism can survive without 466 a functioning brain stem, and so the "living" human body left behind is not a 467 living human organism, and so not biologically continuous with the original 468 animal.<sup>45</sup> In the case of whole-brain fission, an animalist could argue that 469 the life of a human organism simply cannot be preserved by half of a brain 470 stem, and so neither recipient would possess the original animal's life. And 47 in the case of amoebic division, an animalist could argue that since ordinary 472 amoebic straightforwardly involves the death of the original amoeba, any 473 form of human reproduction that might resemble it could straightforwardly 474 be interpreted in the same way. So there are several responses available to the 475 animalist here. 476

But notice that Thomistic hylomorphism can offer another solution to the 477 problem of fission not available to the animalist. According to Thomistic 478 hylomorphism, each of us is identical to a particular rational animal, and a 479 rational animal persists by virtue of the continued possession of the same 480 rational soul. While the presence and persistence of the rational soul is in-481 dicated by the presence and persistence of the various capacities to which 482 it normally gives rise, including the various vital functions and metabolic 483 activities which comprise biological continuity, it is not reducible to those 484 capacities. And so while biological continuity can be preserved along more 485 than one path, in any such case there would still be some further fact that 186 could determine which of those paths preserves the original animal's life, 487

<sup>44</sup> See, for example, Olson, *The Human Animal*, pp. 90-93 and van Inwagen, *Material Beings*, pp. 152-154.

<sup>45</sup> See, once again, van Inwagen, *Material Beings*, pp. 169-181 and Olson, *The Human Animal*, pp. 44-46, 131-135.

namely, which path contains the person's substantial form, her rational soul. 488 Moreover, if forms or souls are mereologically simple, then they cannot be 489 split. And if they cannot be split, then there is at most one path that contains 490 the person's substantial form, her rational soul. It is impossible for part of 491 the person's form to be present along one path and another part of it to be 492 present along another, and it is impossible for all of it to be present along more 493 than one path. Thus, according to Thomistic hylomorphism, there will be a 494 determinate fact of the matter in any fission case as to what has happened 495 to the original human person. Her identity could have been preserved along 496 one path, or the other, or her form could have been destroyed altogether and 497 so the person might have ceased to exist. We might never be in a position to 498 know which of these possibilities was actualized. But in any case there will 499 be a determinate fact of the matter which it was. And that's another move 500 unavailable to the reductionist animalist.46 501

### 5. Conclusion

502

Animalism (once again, in its "strong" form) is typically understood as a 503 reductionist theory of personal identity over time, inasmuch as it holds that 504 personal identity consists in, and is thus reducible to, certain other more basic 505 facts about biological continuity. I have argued that because of its commitment 506 to a reductionist theory of personal identity, animalism is susceptible to two 507 major concerns faced by other reductionist theories. But could there be a 508 non-reductionist animalism? Is there room for a kind of animalism which 509 maintains that the identity of a human animal over time consists in the 510 continuity of its life but denies that the life of an organism is reducible to any 511 other more basic biological facts, to any of the particular interactions that take 512 place between the parts of that organism at any time? And would shifting 513

46 Eberl offers a similar hylomorphic, further fact solution to the problem of fission at pp. 133-134 of his *The Nature of Human Persons*, though he focuses on teletransporter fission cases and the problems that they pose for psychological approaches, whereas I have focused on biological fission cases and the problems that they pose for animalism. It is sometimes objected that nonreductionist solutions to fission cases simply push the problem back a step. Isn't it still entirely arbitrary which of B or C gets A's rational soul? What sort of explanation could there be as to why A jumps to B rather than C, or vice versa, since B and C are both equally good, or at least sufficiently good, candidates for A? But I think that this objection misunderstands what is being proposed by the non-reductionist. The claim isn't that A's rational soul "jumps" from A to B or C. The claim is that B or C *just is* A. A's rational soul doesn't need to "jump" to B or C. It simply has to remain in the same body in which it has been present all along, while at the same time that body gives rise to another of its kind. to some kind of non-reductionism allow animalism to evade the two major concerns discussed above?

I can think of three ways in which animalism could be fleshed out in non-516 reductionist terms. First, an animalist could advocate a kind of mereological 517 non-reductionism about lives, according to which the life of an organism is a 518 kind of higher-level, composite event, activity, or process - an event, activity or 519 process composed of, but neither identical to, nor reducible to, the particular 520 interactions that take place between the parts of that organism over time. In 521 such case, the life of an organism might also exert a kind of top-down causal 522 influence on the parts of the organism, conditioning or constraining their 523 behavior in various ways over time. Call this the mereological non-reductionist 524 option. 525

Alternatively, an animalist could advocate a kind of further fact non-526 reductionism about lives. And I can think of two ways of doing this. First, 527 an animalist could hold that the life of an organism is a kind of emergent 528 event, activity, or process, something which arises from, or is produced by, 529 the particular interactions that take place between the parts of that organism 530 over time but which is nonetheless something altogether distinct from 531 them. Call this the emergentist option. The main difference between the 532 mereological non-reductionist option and the emergentist option is that the 533 mereological non-reductionist option understands the particular interactions 534 that take place between the parts of the organism over time to be parts of the 535 organism's life, whereas on the emergentist option the organism's life is some 536 further thing, some additional event, activity, or process that arises from, or is 537 produced by, those particular interactions but is in no way composed of them. 538

Finally, an animalist could advocate a kind of further fact non-reductionism 539 about lives by holding that the life of an organism is some kind of deeper, 540 underlying event, activity, or process - an event, activity or process which 541 gives rise to, or causes, the particular biological processes that are apparent 542 to us but which is something altogether distinct from them. In such case, 543 those particular biological processes would be understood as the various 544 ways in which the deeper, underlying event, process, or activity that is the 545 organism's life manifests itself over time. Call this the submergentist option. 546 On both the emergentist and the submergentist options, the life of a living 547 organism is some additional entity, some further thing within the organism 548 beyond the particular interactions that take place between its various parts 549 over time and which constitute the various vital functions and metabolic 550

activities of the organism<sup>47</sup>. The difference between the two proposals is the 551 direction of causality or the order of explanation. On the emergentist option, 552 the organism's life is something arising from, or produced by, the particular 553 interactions that take place between the various parts of a living organism 554 over time. Conversely, on the submergentist option, the particular interactions 555 that take place between the various parts of a living organism over time arise 556 from, or are produced by, the deeper, underlying event, process, or activity 557 that is the organism's life. On the former, the organism's life persists because 558 of those particular interactions; on the latter, those particular interactions 559 occur because the organism's life persists. 560

Now, much more would need to be said about each of these proposals in 561 order to determine how well they fare or whether they would be abandoning 562 too many of the core commitments of animalism to be considered genuine 563 variants of that approach. But if an animalist were to reconceptualize the 564 notion of a life in any of these three ways, would it even allow animalism to 565 evade the two major concerns for reductionist theories of personal identity 566 discussed above? Right off the bat, it is not clear to me that the mereological 567 non-reductionist option does allow animalists to successfully avoid the prob-568 lems of indeterminacy and fission. For as long as the life of an organism is 569 composed of various smaller processes or interactions, then it is possible to 570 imagine cases in which that life is preserved only to a certain degree (inas-571 much as fewer of those smaller processes or interactions remain) or preserved 572 twice over (by taking half of those smaller processes or interactions and set-573 ting them off in one direction and taking the other half and setting it off in 574 another). What the non-reductionist animalist needs is for lives to be mere-575 ologically simple, incapable of admitting of more or less, and incapable of 576 being split or divided or duplicated. And only on the second two options is 577 this a possibility. 578

If an animalist were to reconceptualize the notion of a life in either of these last two ways, then it may be open to her to deny that personal identity consists in, and is thus reducible to, mere biological continuity. It is open to the non-reductionist, further fact animalist to insist that while the identity of a human animal over time consists in the continuity of its life, the identity of the animal's life is some further fact beyond, beneath, or over and above the particular interactions that take place between the parts of that organism, the

<sup>47</sup> In some sense this could also be said of the mereological non-reductionist option. The difference here is that on the latter two options the life of an organism is not only distinct from these interactions and activities, it also neither composes, nor is composed of, them.

particular biological processes in which the various parts of that organism 586 are engaged. It could still be true that the continuity of those interactions and 58 processes are the best evidence we have for thinking that the same life remains, 500 but, crucially, the continuity of that life would not consist in them. And if the 589 identity of a human animal is grounded not merely in biological continuity 590 but in the presence of some further fact, then this makes available similar 591 further fact solutions to the two main problems for reductionist animalism 592 articulated above. The non-reductionist animalist could insist that while 593 biological continuity may admit of degree, the identity of an organism's life 594 does not. And while biological continuity can be preserved along more than 595 one path, in any such case there would still be some unique, further fact 596 concerning which path preserved the original organism's life. 597

There are, then, several ways of fleshing out a non-reductionist variant of 598 animalism which might help it to avoid the two main concerns for reductionist 599 animalism articulated above. But notice that in fleshing out animalism in 600 this way, the view would thereby come very close to a kind of hylomorphism, 601 perhaps even to the sort that Aquinas himself had in mind. For it would then 602 hold that each of us is identical to a particular human animal, that the one and 603 only thinker of my thoughts is that animal, and that, in most circumstances, 604 our identity over time can be tracked by following biological continuity, but 605 also that every animal possesses a further part or aspect, its life, which also 606 serves as the metaphysical ground for that animal's identity over time. Indeed, 607 when spelling out what exactly a life is, it is not uncommon for animalists to 608 speak in strikingly hylomorphic ways. Here are some examples: 609

Living organisms have a dynamic stability: they retain their characteristic *form* and structure despite a constant and rapid exchange of matter and energy with their surroundings.<sup>48</sup>

A life is a sort of storm of particles in constant motion. Storms too are events: they are extended in time, begin and end, have earlier and later parts.) A life draws in new particles and energy from its surroundings, imposes its characteristic *form* of activity on those particles, and later expels them. But unlike meteorological storms, lives are self-directing, or self-organizing. Their activities are constrained by elaborate internal controls. One result of this is that a life retains its *form* and structure for a remarkably long time, compared with the rate at which matter flows through it.<sup>49</sup>

The nature of the physical universe is such that the mere exis-622 tence of a living organism, the mere fact that it is distinguishable 623 from its environment, means that it is in a state of jeopardy. By 624 the middle of the nineteenth century physicists were forced to 625 acknowledge that the physical universe tends towards a state of 626 uniform disorder, a leveling down of all observable differences, 627 and that left to themselves things will cool, fall, slow down, crum-628 ble and disperse. In such a world the survival of *form* depends 629 on one of two principles: the intrinsic stability of the materials 630 from which the object is made, or the energetic replenishment 631 and reorganisation of the material which is constantly flowing 632 through it. The substances from which a marble statue is made 633 are stably bonded together, so that the object retains not only its 634 shape but its original material. The configuration of a fountain, on 635 the other hand, is intrinsically unstable, and it can retain its shape 636 only by endlessly renewing the material which constitutes it; that 637 is, by organising and imposing structure on the unremitting flow 638 of its own substance. Statues preserve their shapes; fountains per-639 form and re-perform theirs. The persistence of a living organism 640 is an achievement of the same order as that of a fountain. The 641 material from which such an object is made is constitutionally un-642 stable; it can maintain its configuration only by flowing through 643 a system which is capable of reorganising and renewing the con-644 figuration from one moment to the next. But the engine which 645 keeps a fountain aloft exists independently of the watery form for 646 which it is responsible, whereas the engine which supports and 647 maintains the form of a living organism is an inherent part of its 648 characteristic structure.50 649

Animalism assumes that the biological functioning of the human
 organism – that is, the persistence of the unity and interaction
 of metabolic processes – is essential for human beings to persist.

49 Ibid., pp. 136-137, emphasis added.

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<sup>50</sup> Jonathan Miller, *The Body in Question* (New York: Random House, 1978): pp. 140-141, emphasis added, quoted in van Inwagen, as an illustration of the sort of view that he has in mind, at pp. 92-93 of *Material Beings*.

Accordingly, a person's identity is no different from the identity of
 other living things like horses or mosquitos. Her persistence does
 not consist in the preservation of the same matter but rather in
 the preservation of the same organizational biological *form*, since
 the matter constituting the organism is continually replaced.<sup>51</sup>

Even van Inwagen himself acknowledges the proximity of his own view to the hylomorphism of Aristotle:

In explaining what a life is, and having done so, in saying that
 the things called 'organisms' or 'living things' in everyday life are
 things that are composed of objects whose activities constitute
 lives in the sense explained, I have presented a certain picture,
 rather an abstract one, of the nature of a living organism. This
 picture is a philosophical picture (*stripped of its atomism, it would be Aristotle's picture*)<sup>52</sup>

But just how similar would non-reductionist animalism and Thomistic hylo-667 morphism be? On the sort of non-reductionist animalism that I have described, 668 the further part or aspect which serves as the metaphysical ground for that 669 animal's identity over time, its life, is a kind of event, process, or activity. And 670 hylomorphists, let alone Thomistic hylomorphists, do not typically refer to 671 the form or soul of a living organism as any kind of event, activity, or process. 672 However, there are in fact several contemporary hylomorphists, inspired by 673 Aristotle and St. Thomas, who have recently argued for an understanding of 674 form along these lines.<sup>53</sup> And so if animalists opt for non-reductionism with 675

<sup>51</sup> Gasser and Stefan, "Introduction", p. 4, emphasis added.

<sup>52</sup> van Inwagen, Material Beings, p. 92, emphasis added.

<sup>53</sup> See, for example, William Jaworski, Structure and the Metaphysics of Mind: How Hylomorphism Solves the Mind-Body Problem (Oxford: Oxford University Press, 2016): pp. 14-15; William Jaworski, "Hylomorphism: Emergent Properties without Emergentism," in Miguel Garcia-Valdecasas and Nathaniel Barrett (eds.), Biology and Subjectivity: Philosophical Contributions to Non-Reductive Neuroscience (Basel: Springer, 2016): pp. 48-49; Anna Marmodoro, "Aristotle's Hylomorphism without Reconditioning", Philosophical Inquiry, Vol. 36, No. 1-2 (Winter-Spring, 2013): p. 17; Anna Marmodoro and Christopher J. Austin, "Structural Powers and the Homeodynamic Unity of Organisms", in William M. R. Simpson, Robert C. Koons, and Nicholas J. Teh (eds.), Neo-Aristotelian Perspectives on Contemporary Science (New York: Routledge, 2017): p. 171; Robert C. Koons, "Stalwart vs. Faint-Hearted Hylomorphism: Toward an Aristotelian Account of Composition", Res Philosophica, Vol. 91, No. 2 (Apr., 2014): p. 159; Christopher J. Austin, "A Biologically Informed Hylomorphism", in William M. R. Simpson, Robert C. Koons, and Nicholas J. Teh (eds.), Neo-Aristotelian Perspectives on Contemporary Science (New York: Routledge, 2017): Teh (eds.), Neo-Aristotelian Perspectives on Contemporary Science (New York: Routledge, 2017):

respect to lives, and if hylomorphists opt for an understanding of the forms of 676 living things as events, activities, or processes, then animalism and hylomor-677 phism turn out to be very similar indeed. Which leaves us with the dilemma 678 for animalists with which I began the paper: confronted with the problems of 679 indeterminacy and fission, animalists must either forego reductionism and 680 reconceptualize the continuity of a human organism's life in non-reductionist 681 terms, in which case animalism turns out to be not very different at all from a 682 kind of hylomorphism, or they can continue to conceptualize the continuity 683 of a human organism's life in reductionist terms, in which case Thomistic 684 hylomorphism has the advantage over animalism in that it avoids two major 685 concerns faced by its closest competitor. 686

With that said, it may be that there are other difficulties for Thomistic hylo-687 morphism not faced by animalism, problems that stem from its commitment 688 to the existence of some further fact beyond biological and psychological con-689 tinuity which determines our identity over time. It should be emphasized that 690 Thomistic hylomorphism is a theory with some extraordinary commitments. 69 It posits the existence of an immaterial, indivisible, and undetectable element 692 within every human person. It is committed to the unicity of substantial form, 693 and thus the inability of any material part of the human person to survive 694 separation from the whole. And it introduces the complex apparatus of a 695 hylomorphic theory of nature to explain the relationship between body and 696 soul. On the other hand, if, as several of the authors cited above have argued. 697 these concerns can indeed be successfully addressed, and these extraordinary 698 commitments can indeed be sufficiently motivated, then Thomistic hylomor-699 phism may serve as a plausible alternative for the animalist wishing to capture 700 the most important insights of that sort of view.[^54]\* 70

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pp. 185-209; Jeremy W. Skrzypek, "From Potency to Act: Hyloenergeism", *Synthese*, Vol. 198, No. 11 (Jun., 2021): pp. 2691-2716.

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