LIBERTY UNIVERSITY

# DE ANIMA, DNA:

## A MODIFIED STUMP/AQUINAS HYLOMORPHIC MODEL,

## THE SOUL AND THE IDENTITY OF HUMAN PERSONS, RESURRECTED

A THESIS SUBMITTED TO THE COMMITTEE

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BY

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καὶ μὴ φοβεῖσθε ἀπὸ τῶν ἀποκτεννόντων τὸ σῶμα,
τὴν δὲ ψυχὴν μὴ δυναμένων ἀποκτεῖναι ·
φοβεῖσθε δὲ μᾶλλον τὸν δυνάμενον
καὶ ψυχὴν καὶ σῶμα ἀπολέσαι
ἐν γεέννῃ.

-ΚΑΤΑ ΜΑΘΘΑΙΟΝ 10:28

(And fear not them which kill the body,
but are not able to kill the soul:
but rather fear Him which is able
to destroy both soul and body
in hell.)

-Matthew 10:28 (KJV)

**Abstract**

In contemporary metaphysics, there are two popular options for personal numerical identity (NID) over time: substance dualism and materialism. According to recent arguments by some Christian philosophers, both options conflict with the Christian doctrine of the bodily resurrection. Substance dualism trivializes the physical body for NID (when it has some kind of role in the bodily resurrection), and also is seen to conflict with modern neuroscience. But NID and mind cannot be continued solely by the material body, as versions of the Replacement Argument (from Richard Swinburne and Alvin Plantinga) show. There are good aspects to both options, especially with regard to the bodily resurrection. Is there a way to reconcile them?

In this thesis I have two motivating big questions: 1) Can the conflict between Christian substance dualists and materialists be resolved by the hylomorphic Aristotelian model of human personhood proposed by Eleonore Stump, based on her interpretation of Thomas Aquinas (the Stump/Aquinas model)? 2) Does the Stump/Aquinas model overcome metaphysical challenges against numerical identity and the bodily resurrection? I argue that the Stump/Aquinas model accommodates the conflict between Christian dualists and materialists by identifying human persons with both the physical body and the immaterial mind as a single-substance composite. If we think of the disembodied state as a 'data backup' and couple the medieval solutions with contemporary terminology, then the Stump/Aquinas model overcomes most of the metaphysical challenges it faces. But, the model ultimately requires a modification to answer the second big question. DNA (as genome or immaterial information) is the configured configurer and part of Aquinas's original concept of the soul as the Aristotelian form of the body. In light of its explanatory power and compatibility with Aquinas' thought, I argue the Stump/Aquinas model, modified with DNA, is a strong contender for a robust philosophical-theological anthropology.

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# Chapter One

## Introduction: Two Big Questions

Imagine a person, P –we will call him Paul. According to the debate in contemporary metaphysics, it seems we have two majority and popular options to account for his personal numerical identity. If substance dualism is true, then Paul is two separate substances (a soul/mind and a body), and he is numerically identified only with the immaterial aspect of himself (the soul/mind). If materialism is true, then Paul is one substance (a physical body made of atoms), numerically identified with only his body, and the things historically attributed to the immaterial soul (intellect, volition, sensation, memory, personality, consciousness, etc.) are products of his neurological and biochemical processes.

According to recent arguments made by some Christian philosophers, both of the above options have problems in the face of the Christian doctrine of the bodily resurrection.[1] Under substance dualism, the materialists argue, Paul's physical body is trivial to his resurrection. They say dualism is in conflict, since the bodily resurrection assigns at least some sort of role to Paul's body for personal identity. Materialists also say dualism conflicts with everyday experience, especially given the scientific advances made in knowledge of the human body and brain. But under materialism, the substance dualists argue, Paul's body cannot be the sole bearer of his personal identity, because of the problems related to Ship of Theseus type puzzles for material

[1] In this thesis, let the bodily resurrection be such that Paul will be –must be– numerically identical with his pre-death self; his individual essence (whether in the body or in the soul/mind) must survive his death and must continue his personal numerical identity between death and resurrection. Te very nature of the issue in question is centered on the problem of personal numerical identity and the bodily resurrection, as a question of philosophical theology.

objects. Beyond that, the dualists argue it is far from intuitive to say mental content is identical to states in the material brain –and mental content should not be what personal identity reduces to, in the first place.[2] It appears both dualists *and* materialists have the upper hand in regard to explaining the bodily resurrection of the dead and continuity over time of numerical personal identity! Is this conflict irresolvable or can we mediate between the good points that both dualists and materialists make with respect to the resurrection and identity of persons? We are left with a quandary, and a stalemate regarding poor Paul's identity, and our own. Who and what is he? What are we?

But what if, instead of being numerically identified with only his material body, or only his immaterial soul/mind, Paul is identified with both, as a substantial composite? Instead of the two parts being separate substances, what if the union or composite of Paul is a single substance? And what if, instead of the form of Paul having nothing to do with his body, Paul's essence or soul in-formed (and en-formed) the material composite –so that what is necessary for Paul's identity could be 'backed up' like computer data? It would mean his identity remains constant, and his body is not the seat of his identity, but is properly part of his identity. Could it work?

In this thesis I have two motivating 'big questions', the second following from the consequences of the first. 1) Can the apparent conflict between Christian substance dualists and materialists be resolved by the hylomorphic Aristotelian understanding of human personhood proposed by Eleonore Stump, based on her interpretation of Thomas Aquinas (hereafter termed the 'Stump/Aquinas model')?[3] 2) Does the Stump/Aquinas model overcome the many

[2] These two items, for example, comprise Alvin Plantinga's two main arguments in "Against Materialism," *Faith and Philosophy* 23, no. 1 (Jan 2006): 3-32 and "Materialism and Christian Belief," in *Persons: Human and Divine*, Edited by Peter van Inwagen and Dean Zimmerman (Oxford: Oxford University Press, 2007): 99-141.

[3] See Eleonore Stump, "Non-Cartesian Substance Dualism and Materialism without Reductionism," *Faith and Philosophy* 12, no. 4 (October 1995): 505-31; and *Aquinas* (New York: Routledge, 2003). As to the name I am assigning: Stump, in *Aquinas*, 212, admits that Aquinas is some kind of dualist "since he thinks that there is an

metaphysical challenges surrounding numerical identity and the bodily resurrection (which is at the heart of the aforementioned conflict)? I will argue that the Stump/Aquinas model accommodates almost all of the conflicts between Christian dualists and materialists, but it requires a modification as an answer to the second 'big question': DNA as Stump's 'configured configurer' rightly viewed as part of Aquinas's original concept of an in-forming[4] *esse* or soul. In light of its explanatory power and compatibility with Aquinas's thought, I will argue that the Stump/Aquinas model, so modified with DNA, is a strong contender for a robust philosophical-theological anthropology.

I will introduce the first question by briefly framing in this introduction what dualism requires of the Stump/Aquinas model, via Plantinga's and Swinburne's versions of the Replacement Argument. This will lead to the topic of chapter two: the Stump/Aquinas model, sectioned into succinct statements that are readily found among the defenders of the model. Among them: Aristotle's four causes at the forefront in order to think within Aquinas's metaphysical context about the soul (the most important of the four causes being formal cause); Boethius's definition of a person, "an individual substance with a rational nature," to show that

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immaterial and subsistent constituent of the subject of cognitive function." In "Non-Cartesian," 520, Stump coins "subsistence dualism," which is certainly an option, though it fails to capture the hard distinction between Aquinas's view and Descartes'. Regarding the careful way Stump and Aquinas deal with the intellective aspect of a person, 'emergence' fits to an extent (and Stump has a brief discussion of 'substance' as an emergent thing in *Aquinas* Chapters 1 and 6). However, the different shade of meaning for 'emergent' in William Hasker's context rules it out. 'Hylomorphism' is an option, but because Aquinas is not considered a thoroughgoing hylomorphist, and he modifies Aristotle's metaphysics heavily, it does not seem to work, either. 'Composite dualism' or 'compound dualism' may fit, and both have been used recently in the literature –and rightly so: the view can be properly classified as dualism to the extent that Aquinas holds to a disembodied state distinct from Plato's or Descartes'. However, to be safe, I am calling it the 'Stump/Aquinas model', to go more along the lines of Hud Hudson's coining, "whatever it is that Aquinas is." Hud Hudson, "I Am Not An Animal!" in *Persons: Human and Divine*, Edited by Peter van Inwagen and Dean Zimmerman (Oxford: Oxford University Press, 2007): 220-21.

[4] Throughout the thesis, I will be borrowing this nuanced understanding of "inform" or "information" and emphasizing the double-meaning by hyphenating the term where necessary. Although I can attest that I came upon this novel way of using words entirely independent of my reading, for what seems to be the original usage of that turn of phrase, see Marjorie Grene, "Aristotle and Modern Biology," *Journal of the History of Ideas* Vol. 33, no. 3, Festrschrift for Philip P. Wiemer (Jul-Sep 1972): 412, where she says, "Thus in the code case or in physiological explanation, the problem-location, the description *and* the explanation all refer to form: in*form*ation."

immaterial minds expressed in a material composite reflects the metaphysically amphibious nature of human beings; the soul as configured configurer, unique as the only kind of form that survives and subsists from the matter it in-forms; and the criteria for what a 'substance' is for Stump/Aquinas, to show the separate soul is not a substance by itself, and thus distinguishing the model from substance dualism. This will all go toward answering the first 'big question.'

Then, in chapter three, I will argue the Stump/Aquinas model answers Plantinga in the affirmative, "Does Paul exist when his body does not?" by way of (C ≠ ID): For Paul's numerical identity, disembodied and resurrected, Constitution is not Identity. I will introduce the 'data backup' analogy (via John Polkinghorne's information-bearing pattern) to give more clarity to the Stump/Aquinas disembodied state. Ambiguities many identify concerning Stump/Aquinas and the intellect or mind can be resolved with (D ≠ ID): Relating between the brain and mental states, Dependence is Not Identity. With brain localization as a potential weak spot, I will show that Stump/Aquinas can –with D ≠ ID and a conception of the mind 'backed up' along with the configured configurer– include the findings of modern neuroscience (and therefore the materialists' big reason for holding their view). However, even with the two above axioms, there are resulting metaphysical challenges concerning the ambiguity of 'form' and the resulting problem of numerical identity (NID) for the bodily resurrection. It will seem, as a result, that the Stump/Aquinas soul must be understood as a μορφη part and a νους part in one unqualified soul. This will result in a conflict that makes it necessary to modify Stump/Aquinas.

So, in chapter four I will introduce a modification to the model: the immaterial information, or genome, of Paul's DNA is the 'configured configurer'. I will argue why DNA needs to be included within the model, how it accommodates many other problems, and how objections to it may be overcome. I show Paul's numerical identity cannot be merely his DNA,

because of the problems arising with his identical twin Raul. This means splitting the rational soul between DNA as 'configured configurer', and the traditional understanding of the psychological self that survives death (what I will call, strictly for the purposes of this thesis, the Seele-νους), both 'backed up' as immaterial information. So I will show Paul's teleological in-form-ation, as both DNA and Seele-νους, is sufficient for a solution to the problem of personal numerical identity for the resurrection. Finally, in chapter five, I will address any remaining objections or logical loose ends and then show step-by-step what Paul's resurrection entails under the Stump/Aquinas model. Throughout, I hope to defend the concept of 'soul' while also upholding the importance of the physical body, in order to navigate the treacherous waters of identity of persons, toward a more coherent Christian metaphysic of the bodily resurrection.

**The Requirement from Dualism: the Replacement Argument**

Before I can present the case for the Stump/Aquinas model, I must call brief attention to the arguments presented in favor of dualism/immaterialism by Swinburne and Plantinga, in order to determine what seems irrefutable and necessary. Substance dualism has been an accepted view of metaphysical personhood within classical Christianity, and is perhaps the current majority view. It is also a notable philosophical view, with Plato and Descartes commonly seen as its most famous defenders. Alvin Plantinga and Richard Swinburne share one argument (among others) for substance dualism upon similar merits as the historical iteration: an argument based upon a thought experiment dealing with the replacement of Plantinga's body parts, or brain, while he retains his identity, the Replacement Argument. This argument serves as a potential stumbling block for anyone arguing for personal identity linked solely to the material body. It therefore sets up some requirements that the Stump/Aquinas model must fulfill.

Swinburne's statement and defense of it is a recent well-known version, and he notably defends dualism within contemporary analytic philosophy. Because he denies any triviality of the physical body, Swinburne considers his position to be more like "soft dualism."[5] He still centers the compelling call for dualism on the intuition that there is "more to me than the matter of which my body and brain are made, a further essential non-physical part whose continuing existence makes the brain (and so body) to which it is connected my brain (and body) and to this something I give the traditional name of 'soul'."[6] Soul, for Swinburne, is "pure mental substance,"[7] and the understanding of the existence of this substance comes as a result of considering Swinburne's version of the Replacement problem, the Brain State Transfer thought experiement (BST). It starts with the brain, since it seems right that Paul's identity would continue if he lost his arm or foot, but the brain is a special consideration.[8] So, the thought experiment of Paul having both hemispheres of his brain removed and implanted into two separate bodies poses a problem: which one is Paul? Whereas in Bernard Williams's famous "mad surgeon dilemma," Paul would be forced to choose which of his 'selves' survives or dies, Swinburne points out some intangible qualities of personal identity –namely, free will and self realization–that seem absurd to think of continuing in part. If Paul can continue with some other matter (a different body, perhaps), then Paul's matter is not essential to his personal identity at all, and so *no* matter is essential to Paul.[9] Furthermore, it seems if Paul were to consciously experience and remember within one body/brain on even days, and then swap his memory,

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[5] Richard Swinburne, *The Evolution of The Soul* (Oxford: Oxford University Press, 1986), 10.

[6] Richard Swinburne, *Existence of God* (Oxford: Oxford University Press, 2004), 198.

[7] Ibid, 199.

[8] Swinburne, *The Evolution of the Soul*, 147ff.

[9] Ibid, 153; *Existence of God,* 197-98.

consciousness and character (without a physical brain transplant) to another body on odd days, the material body would have little to do at all with Paul's personal identity.[10] This is why, when it comes to identity of human persons, Swinburne favors a shift from a strict Aristotelian account of material identity toward a modified account –where what constitutes personal identity is indivisible and simple, and not based upon its materials.[11] He thinks classical substance dualism more simply expresses this view, rather than Aquinas's modifying Aristotle's soft materialism.

Alvin Plantinga has recently argued strongly for dualism, with the explicit claim, "Materialism goes contrary to the Christian tradition; even worse (so I'll argue), it is false. As I see it, therefore, Christian philosophers ought to be dualists …Finally, certain crucial Christian doctrines (for example, Incarnation and the resurrection of the dead) fit better –much better, I'd say—with dualism than with materialism."[12] Plantinga's conviction rests upon his versions of the Replacement argument, all iterations of which require the statement, "It is possible that: the cells in B are replaced by other cells and the originals instantly annihilated while I continue to exist; and the replacement time for B and those cells is shorter than the assimilation time."[13] The strategy parallels Swinburne's: show how personal identity is not at all contingent upon the physical body. Plantinga has two versions of the argument: the macroscopic and microscopic. The macroscopic argument shows the logical possibility for all parts of Paul's body (B) to be replaced, and the original parts annihilated, over a time as short as a microsecond. Thus, B would no longer exist, but Paul would. This is even true of the brain, which Plantinga says could have

[10] Swinburne, *The Evolution of the Soul*, 166.

[11] Sydney Shoemaker and Richard Swinburne, *Personal Identity* (Oxford: Basil Blackwell, 1984), 29-33; and *The Evolution of the Soul*, 154, called the "quasi-Aristotelian assumption."

[12] Plantinga, "Materialism and Christian Belief," 99-100.

[13] Plantinga, "Against Materialism," 6. Also on p. 4, "It seems possible that I continue to exist when B, my body, does not. I therefore have the property *possibly exists when B does not*. B, however, clearly lacks that property."

its contents transferred from one hemisphere to another, and the brain could be replaced by all-new material, one hemisphere at a time.[14] In the microscopic argument, Plantinga argues for the logical possibility of Paul's body being replaced at the level of atoms, molecules, or cells. This would again be in a very brief amount of time, all while Paul remains conscious.[15] The microscopic version is, save for the brief amount of time posited for the replacement to take place, actually more true to life: all of the matter composing Paul's body is cyclically replaced every few years (and the matter composing the brain is actually replaced every two months).[16] So, from pure logical possibility, it seems right to say Paul continues to exist over the brief time it takes to replace the parts of B –even his brain hemispheres– either by chunks or by tiny bits. If this holds, it would mean Paul's personal identity is not his body, so Paul is not his body.

So, the requirement given to Stump/Aquinas from substance dualism is plain: Paul cannot be numerically identified with *solely* his material body. But due to the bodily resurrection, the physical body has at least some role in personal identity. This tension means, at least, keeping in mind the conclusions of Swinburne's BST thought experiments and Plantinga's Replacement Arguments. While holding this tension, we must show: 1) how the Stump/Aquinas model is still distinct from substance dualism; 2) how Paul's soul *is* numerically identical to him when it is disembodied; 3) how substantial form (the soul) can be responsible for mental states *and* configuring matter in the Aristotelian sense. With the unique way the Stump/Aquinas model accounts for metaphysical categories, information, material constitution and mind, I will argue in the next three chapters that the DNA-modified Stump/Aquinas model is compatible with this requirement from dualism while still meeting almost all of the other challenges it faces.

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[14] Ibid, 4- 5.

[15] Ibid, 5-6.

[16] Plantinga, "Materialism and Christian Belief," 104.

## Chapter Two

### Ancient and Medieval Background: The Stump/Aquinas Model

At resurrection, our subject, Paul, is in the middle of the dualist-materialist conflict. Given the various iterations of the Replacement Argument (RA), Paul's numerical identity cannot be comprised simply of his material body. But, given the bodily resurrection, Paul should be *somehow* identified with his material body, since upon being resurrected Paul will *be* a body again, and it is promised to be quite like his old one, to say the least. The Stump/Aquinas model, with Paul as an in-formed material composite, bridges the conflict over the resurrection between dualists and materialists. Admittedly, the goal of a golden mean between them (or a strategy to incorporate the good parts from both), is an elusive prize, and therefore a popular target. What makes the Stump/Aquinas model an attractive possibility is its resilience against a traditional label, mainly due to its flexibility to incorporate truths from seemingly contradictory views. Namely: the Stump/Aquinas non-Cartesian dualism is consistent with RA, and consistent with observations raised by Christian materialists[17] regarding the relation of brain states to mental states, and the bodily resurrection. The modification I offer via DNA to meet the challenge of the criterion of personal numerical identity can be affirmed consistently only by a composite

[17] The most paradigmatic of whom are Kevin Corcoran, *Rethinking Human Nature: A Christian Materialist Alternative to the Soul*, (Grand Rapids: Baker Academic, 2006); Lynne Rudder Baker, *Persons and Bodies: A Constitution View*, (Cambridge: Cambridge University Press, 2000); Trenton Merricks, *Objects and Persons*, (Oxford: Oxford University Press, 2004); Nancey Murphy, *Bodies and Souls, or Spirited Bodies?* (New York: Cambridge University Press, 2006); and Peter van Inwagen, *Material Beings*, (Ithaca, NY: Cornell University Press, 1990), among others.

position: dualism or materialism would have to capitulate on important points, and essentially take on aspects of the Stump/Aquinas model to support DNA. Here, I am only seeking to show how the Stump/Aquinas model could satisfy the conditions for both sides –I do not hope to solve the problem outright. Still, getting from A to B –to Ω– will take some background information.

For our purposes, the most important advocates of the Stump/Aquinas model are Eleonore Stump,[18] Christina van Dyke,[19] and Jason T. Eberl.[20] They thoroughly cite and defend Aquinas's position, and each support Stump's interpretation in order to rise to contemporary challenges relying on Aristotelian categories. As I see it, there are six statements of the model, to which I will refer: (A) Aristotelian metaphysical causality: soul is hylomorphic form; (B) Boethius defines a person: human persons are metaphysical amphibians; (CC) Configured configurer of the material composite is Stump's 'soul'; (DDD) Descartes' dualism is denied: Human persons are one composite material substance and not two substances; (C ≠ ID) For Paul's disembodied NID, Constitution is not Identity; (D ≠ ID) Between the brain and mental states, Dependence is Not Identity. For reference and clarity, I will discuss and define the first four statements of the model, and thoroughly cite affirmations of them, in this chapter. For better organization, and because of the pack of metaphysical quandaries that accompany them, I will save the discussion of the last two statements for the next chapter. Along the way I will offer brief exposition, including answers to the requirement from dualism, and answers to other objections to the Stump/Aquinas model.

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[18] In "Non-Cartesian Substance Dualism and Materialism Without Reductionism"; and *Aquinas*; and "Resurrection, Reassembly, and Reconstitution: Aquinas on the Soul." in *Die menschliche Seele: Brauchen wir den Dualismus?* Edited by Bruno Niederbacher and Edmund Runggaldier (Frankfurt: Ontos Verlag, 2006), 151-172.

[19] In Christina van Dyke, "Human Identity, Immanent Causal Relations, and the Principle of Non-Repeatability: Thomas Aquinas on the Bodily Resurrection," *Religious Studies* 43 (2007) 373-94; and "Not Properly a Person: The Rational Soul and Thomistic Substance Dualism." *Faith and Philosophy* 26, no. 2 (April 2009): 186-204.

[20] Mostly in Jason T. Eberl, "Aquinas on the Nature of Human Beings," *The Review of Metaphysics* 58, no. 2 (Dec. 2004), 333-365.

**I. (A) Aristotelian metaphysical causality: soul is hylomorphic form**

According to Stump, Aquinas's metaphysics relies upon Aristotelian categories, and therefore his view of soul radically differs from what can be considered a common or Platonic view, which Aquinas sums up as a "motor" within the body.[21] Many people today still think of Paul's soul, then, as a wispy spirit-form that floats away from him upon his death, much like a ghost. Christians who hold this view of the soul will, of course, be influenced by it in their understanding of the resurrection. But for Aquinas, this view of the soul is not the case at all: for him, and for us here, 'soul' is the generic term for a substantial form[22] of a living material object. In the Stump/Aquinas model, the concept of 'form' comes about as a result of Aquinas's theory of things, or that which is a *hoc aliquid* (as opposed to a *res*, a word for 'things' more related to his ontology or theory of what there *is)*.[23] Some *hoc aliquids* are material, and some are not, like angels. Each material thing has a form that configures matter. Form is the actuality of a *hoc aliquid*, and configuration/organization is necessary for existence.[24]

For the Stump/Aquinas concept of 'form', it is helpful to recall some basic information in Aristotle's four causes (αἰτίαι τέτταρες)[25]: material cause (ὕλη), the stuff of which a substance

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[21] See Stump, "Non-Cartesian," 506-7, and *Summa theologiae* (*ST)* Ia.76.a1, a3, a6, and a8.

[22] Stump, "Non-Cartesian," 511. A 'substantial form' is "form in virtue of which a material composite is a member of the species to which it belongs, and it configures prime matter." Stump, *Aquinas*, 194. It is distinct from 'accidental form' in the same way that substance as a category of being is distinct from accidental properties. Substantial forms configure prime matter only, whereas, for example, *artifacts* are a conglomeration of parts (each configured by substantial forms), and the artifact itself is configured from the top by an accidental form. Stump, *Aquinas*, 42-3.

[23] See van Dyke, "Not Properly a Person," 191, footnote 26, where '*hoc aliquid*' is for Aquinas the term for Aristotle's τοδε τι or 'particular substance'. In Stump, *Aquinas*, 35 and the footnotes on 481, *hoc aliquid* can be considered either a substance or a part of a substance (as in the case of a dismembered hand). More concerning 'substance' will be presented in statement (DDD), below.

[24] Stump, *Aquinas*, 37. Here Stump cites *De principiis naturae* (*DPN* ) 1 (340).

[25] See Aristotle, *Physics* Book II, Chs. 3-7 (194b 16-195b 30); *Metaphysics* Book IV, Ch. 2 (1013a 24-1014a 25); *Generation of Animals* Book I, Ch.1 (715a 3-6).

(οὐσία) is made; efficient cause (ἀρχὴ της κινήσεως), the principle of motion/change/activity in a thing; formal cause (μορφη), the "λογος of the thing's essence,"[26] or better yet, the plan or blueprint which configures the thing; and final cause (τελος), the end or purpose of a thing. So, Aquinas's understands Paul's soul as the Aristotelian μορφη of his ὕλη body, and they are a single composite –thus, hylo-morphism[27] (ὕλη and μορφη). A thing's μορφη *in-forms* it into the thing it is. Aristotle provides a statement of the four causes' relationship to man:

> What is the material cause of a man? The menses. What is the moving cause? The semen. What is the formal cause? The essence. What is the final cause? The end. (But perhaps both the latter are the same.) We must, however, state the most proximate causes. What is the matter? Not fire or earth, but the matter proper to man.[28]

Aristotle provides this short anthropological statement more as an example to ask about the biological formation of a person (thus the semen as the efficient cause, when obviously there are other causes that explain motion in a living, functioning grown human being). The ideas may seem odd at first, but perhaps not. The καταμηνια or "menses" as the material cause is not so far-fetched considering the Greek understanding of embryonic development. As the formal cause, he uses the term 'το τι εν ειναι' to describe 'essence,' which Aquinas analogously takes to be the Latin *esse*. In that vein, Aristotle's idea of the soul as a formal cause *in-forming* a composite is crucial to understanding Aquinas's 'soul.' The Greek ideas were carried over in Aquinas's reading of the text, and are therefore important in uncovering these vital categories.

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[26] Aristotle, *Generation of Animals*, Trans. A.L. Peck, In Loeb Classical Library, Edited by G.P. Goold (Cambridge, MA: Harvard University Press, 1979), 3. (Book I, Ch. 1, or 715a 5)

[27] Stump is careful to point out that Aquinas is not a universal hylomorphist, however: angels and disembodied souls are examples of forms that do not configure matter and do not need to: they are without "spiritual matter" and are substantial forms with nothing to form that still engage in mental activity. Stump, *Aquinas*, 16.

[28] "οἷον ἀνθρώπου τίς αἰτία ὡς ὕλη; ἆρα τα καταμηνια; τι δ΄ὡς κινοῦν; ἆρα τὸ σπέρμα; τι δ΄ὡς το εἶδος; το τί ἦν εἶναι· τι δ΄ὡς οὗ ἕνεκα; τὸ τέλος. ἴσως δὲ ταῦτα ἄμφω τὸ αὐτό. δεῖ δὲ τα εγγύτατα αιτία λέγειν. τίς ἡ ὕλη; μη πῦρ ἠ γῆν, ἀλλὰ τὴν ἴδιον." Aristotle, *Vol. XVII: Metaphysics I-IX*, Trans, Hugh Tredennick. In Loeb Classical Library, Edited by G.P. Goold. (Cambridge, MA: Harvard UP, 1980), 417-9. (Book VIII, Ch. 4-6; 1044a 34-1044b 2)

Thus, following Aristotle's breakdown in *De Anima* (II.4 through III.6), for Aquinas, every animate or living thing has a soul, "the first principle of life in things that live among us."[29] Stump points out the Latin word for soul (*anima*) is Aquinas's generic term for the substantial form of any living material object, and the human soul "is the substantial form constituting the material substance that a human being is, and it configured matter, as material forms do."[30] So plants have a nutritive soul, and animals a nutritive/sensitive soul, both kinds of which go out of existence at death. But human souls are a unity of the nutritive/sensitive/rational. So, we are not referring to three separate forms or souls, but rather one soul fulfilling all three roles. For the Stump/Aquinas model, then, the human soul is responsible for: 1) the essence of a human being; 2) the actualization of matter composing it; and 3) the unity of existence and activity in it.[31] These broad categories will be focused below, especially in statements (DDD) and ($C \neq ID$), but this suffices to lay a foundation for the hylomorphic view.

As Swinburne understands it, Aquinas takes Aristotle's oft-cited maxim "the soul is the form of the body" and modifies it to proclaim the human soul is the only form able to exist apart from its matter. That form, though, is only capable of informing the unique body (or brain) for the expression of a particular human soul.[32] So, souls for Swinburne are not only different in rational/epistemic structure, but should be different in "soul-stuff," a category unrecognized by Aquinas.[33] In broader terms, Swinburne argues that because persons are substances, and because

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[29] *ST* Ia. 75.1, as cited in Stump, *Aquinas*, 15.

[30] Stump, *Aquinas*, 201.

[31] Eberl, "Aquinas on the Nature of Human Beings," 335; *Summa Contra Gentiles (SCG)* II.68.3-12; Thomas Aquinas, *A Commentary on Aristotle's 'De Anima.'* Translated by Kenelm Foster and Silvester Humphries. (Notre Dame, IN: Dumb Ox Books, 1994), 77-79. (Book II, Lecture II)

[32] *QDA* un.9 as cited in Stump, *Aquinas*, 193.

[33] Swinburne, *The Evolution of the Soul*, 297.

they cannot be reduced to their Replacement-prone material stuff, they must be made of immaterial *stuff,* which is indivisible, which is the soul.[34] He therefore says Aquinas's system elaborately modifies Aristotle's 'form'. Classical dualism does something just as sweeping in positing immaterial substance as a second kind, and is not tied to keeping neat the connections to Aristotle's system. Swinburne prefers classical dualism –though even he sees benefits in Aquinas, "for example, it enables him to bring out the naturalness of a person being embodied and the temporary and transitory character of any disembodiment."[35] But, while his observations are accurate, it seems Swinburne's argument against Aquinas's Aristotelian framework on forms and *hoc aliquids* is rather *ad hoc*. If we can demonstrate that modifying Aristotle is more cogent in some ways than Swinburne's preference for classical dualism (if, for example, Stump/Aquinas can accommodate DNA in a way Swinburne's cannot), then so much the better for Aquinas.[36] It may be he felt he said everything necessary concerning Aquinas's view in *Personal Identity*, and various places in *The Evolution of the Soul.* But if that is the case, we are left only with a preference for distinct kinds of stuff instead of formal causes, for practicality's sake. Swinburne's reservations about Aquinas's model are well-noted, but are minor caveats against relying upon Aquinas's Aristotelian ways and means, rather than defeaters.

[34] Ibid, 153-4; *Existence of God*, 199-205.

[35] Shoemaker and Swinburne, 32.

[36] Notably, Stump and Kretzmann presented a specific objection to Swinburne's a priori argument for dualism, based upon the semantic distinction of a 'hard fact'. They claimed an Aquinas-type model can avoid the objection; Swinburne quickly pointed out in reply that he can be entitled to his own definitions –but he did not rebut Stump and Kretzmann's claim concerning Aquinas's model. See Eleonore Stump and Norman Kretzmann. "An Objection to Swinburne's Argument for Dualism." *Faith and Philosophy* 13, no. 3 (July 1996): 405-412, specifically on 410, "Aquinas, for instance, developed a very different, non-Cartesian form of substance dualism. We're inclined to think that Aquinas's version is untouched by the sorts of objections we raise against Swinburne's argument and also avoids the standard objections to Cartesian dualism in the literature." See Swinburne's reply (and lack of rebuttal of the Aquinas claim), "Reply to Stump and Kretzmann." *Faith and Philosophy* 13, no. 3 (July 1996): 413-414.

**II. (B) Boethius's definition of person: human persons are metaphysical amphibians**

The defenders of the Stump/Aquinas model show Aquinas consistently holds to Boethius's definition of a person, "an individual substance with a rational nature."[37] (A 'nature' is just a collection of species-specific properties.) This definition upholds the existence of spiritual beings like angels (which are substantial forms not configuring matter), and God, who is pure form.[38] Given this definition of a person, the definition of a *human* person becomes a bit more complex: Aquinas says, "the word 'person' denotes 'this flesh and these bones and this soul, which are the principles that individuate a human being, and indeed which, although they do not belong to the signification of 'person,' do belong to the signification of 'human person' (*humanae personae*)."[39]

This puts human persons of the genus 'rational animal' in an odd place. As Stump explains, Aquinas's thought contains an ontological hierarchy. At the top are God and the angels, forms not configuring matter (with God as pure act). At the bottom are forms configuring matter but unable to subsist apart from the material composites they in-form, like rocks and trees, tables and chairs. Human persons are uniquely in the middle of this hierarchy as "metaphysical amphibians,"[40] whose souls as substantial forms come into existence only with the material composite they configure. The human soul is the highest kind of form configuring material objects, and the lowest kind of form able to subsist separate from matter. Stump observes,

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[37] "Rationlais naturae individual substantia," Boethius, *Contra Eutychen et Nestorium*, Ch. 3. See van Dyke, "Not Properly a Person," 201; Stump, *Aquinas*, 50; Eberl, "Aquinas on the Nature of Human Beings," 333-34; *ST* Ia.29 a.1; *ST* IIIa.2.2; *Questiones de potentia* (*QDP*) 9.2; *Commentary on Peter Lombard's Sentences* I.2-25.

[38] See Stump, *Aquinas*, 198-200. This includes the special case of Jesus' Incarnation, which Aquinas spells out carefully in *ST* IIIa.2.5 and *SCG* IV.43 (3807), as cited by van Dyke, "Not Properly a Person," 196, footnote 44.

[39] *QDP* 9.2.4.co, as cited by van Dyke, "Not Properly a Person," 203.

[40] Stump, *Aquinas*, 16-17 and "Non-Cartesian," 514; van Dyke, *Metaphysical Amphibians: Aquinas on the Individuation and Identity of Human Beings.* (Ph.D. diss., Cornell University, 2000). 1.

"Consequently, in the ranking of forms, the human soul is located right at the boundary between the material and the spiritual."[41]

Human beings have a material nature as rational animals,[42] and though the very definition of 'person' for Aquinas does not entail immateriality, the definition does include it.[43] Furthermore, as Eberl says, "A human being is not merely an aggregate of body and soul. A material human body and its substantial form are metaphysically distinct, but neither of them alone is a substance."[44] Again, because the configurational form (μορφη) comes into existence only along with its matter (ὕλη) in the body, *humanae personae* as 'metaphysical amphibians' are composites. Stump says "[Aquinas] takes the soul to be something essentially immaterial or configurational but nonetheless realized in material components."[45] When placed within the context of Aristotelian form and Boethius's definition, Aquinas's understanding of the soul so far is: the soul is the (Aristotelian) form of the body, and a human being is a composite of the two, which is material, and therefore a human being as rational animal is an immaterial intellective mind expressed by an in-formed material body.[46] We are led, then, directly to the next statement of the Stump/Aquinas model, the 'configured configurer.'

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[41] Stump, *Aquinas*, 205.

[42] See *Boethii De trinitate expositio* q.5 a.3. Also Aquinas's words, "For animal is predicated of man essentially, and in a similar way rational is predicated of animal. Hence the expression *rational animal* is the definition of man." *Commentary on Aristotle's Metaphysics.* Translated by John P. Rowan. (Notre Dame, IN: Dumb Ox Books, 1995), 445. (Bk. 7, Lect. 3 1326)

[43] van Dyke, "Not Properly a Person," 190, "Although the activity of intellection does not require union with matter per se –after all, God and angels are paradigmatically intellective– *human* intellection involved the activity of the bodily senses as well as the soul." See also *ST* Ia.89.a; and *On Truth* (*DV*) 19.1.

[44] Eberl, "Aquinas on the Nature of Human Beings," 336.

[45] Stump, "Non-Cartesian," 519 and *Aquinas*, 204-6.

[46] *ST* Ia.76.1; *DSC* 2; and *ST* 75.7.ad3 where Aquinas says "Properly speaking, it is not the soul but the composite that belongs to the [human] species." Cited by van Dyke, "Not Properly a Person," 192 footnote 29.

**III. (CC) Configured configurer of the material composite is Stump's 'soul'**

Aquinas views the soul as configured/created directly by God and fused into the matter of the body. Because Paul is, like all of us, a "metaphysical amphibian," his substantial form (soul) has a double (backward-and-forward) causal aspect: of God creating it directly as an individual thing and also the soul itself configuring or *in-form* the material composite that makes up Paul, just like the substantial form of other particular things or *hoc aliquids*. As Stump says, "For Aquinas, to be is to be configured."[47] A form organizes and configures a thing, including its causal relations both dynamic (substantial) and static (accidental).[48] Stump's uniquely contributes to Aquinas's understanding of form, and how it relates to the human being: "Like the angels, the human soul is itself configured [by God]; but like the forms of other material things, the human soul has the ability to configure matter [of the body]. The human soul, then, is a *configured configurer*."[49] All material objects are what they are in virtue of their substantial form. As the substantial form of the human body, the soul *in-forms* the way the person (the material composite) is organized for each particular case.

The connection reveals itself the further Stump goes into demonstrating Aquinas's views on form. A macro-level object can be configured on different levels, and she gives the example of the CAT/Enhancer-Binding Protein (C/EBP).[50] In its active form, the C/EBP molecule is a dimer with an alpha helix coil. C/EBP can be gradually reduced in layers of complexity and configuration from the configured whole, to dimer subunits, to amino acids making up those

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[47] Stump, *Aquinas*, 37.

[48] Stump, "Resurrection, Reassembly, and Reconstitution: Aquinas on the Soul," in *Die menschliche Seele: Brauchen wir den Dualismus?* Edited by Bruno Niederbacher and Edmund Runggaldier, (Frankfurt: Ontos Verlag, 2006), 161, "In general, form for Aquinas is not static but dynamic."

[49] Stump, "Non-Cartesian," 514-5; and *Aquinas*, 200; see also *ST* Ia.75.6.

[50] Stump, *Aquinas*, 36 and "Non-Cartesian," 508.

subunits, to compounds making the amino acids, to periodic elements making up the compounds, to protons within each elemental atom, even down to quarks within the protons, until we get to prime matter, which is indivisible, potential and conceptual according to Aquinas. Just as those steps of configuration come together to make C/EBP, the soul is "what makes that matter not only a human body but in fact *this* living human body."[51] Whereas C/EBP and other material things like rocks and trees only have forms that configure the matter, the substantial form of human persons (the soul) is in this in-between state, "metaphysical amphibian": the soul actively configures a substantial composite, uniquely rational among created things. Coupling C/EBP with Aquinas's view of the soul as the configuring form of the matter of *all* living things, 'configured configurer' becomes a powerful way of explaining the hylomorphic relationship between ὕλη and μορφη in living things, particularly in individual human persons.[52]

This means, significantly, the substantial form of human persons as soul is more than just a mind or νους. Christina van Dyke says: "The rational soul is not just responsible for abstract thought, in other words– it's also responsible for our toenails growing, our livers filtering toxins from our blood, and our hearing the alarm clock go off in the morning. Our bodies cannot function in separation from our souls."[53] Paul's soul, then, literally is a configurational state of the materials making up his body, or the organization of the matter he would need to give his body its species-specific causal powers.[54] His soul, furthermore, is unique to his in-formed matter; there is just one substantial form configuring the matter into being the rational animate

[51] Ibid, 509.

[52] Amid her early discussion of Aristotelian form, Stump cites (in *Aquinas*, 481, footnote 5) Marjorie Grene "Aristotle and Modern Biology," *Journal of the History of Ideas* 33 (1972): 395-424. Stump says, "She argues that Aristotle's concept of form is very like the contemporary biological concepts of organization or information." The resulting connections to DNA as configured configurer will become more clear in chapter four, below.

[53] van Dyke, "Not Properly a Person," 190.

[54] Stump, "Resurrection, Reassembly," 161.

material composite of Paul. Paul's soul begins existence only with its composite, the body –not before it.[55] Notably, this configurational state is alone not sufficient to qualify as a substance, which poses a considerable metaphysical difficulty that needs to be addressed. Eberl says, "As configured, a human soul subsists with its own individual set of qualities. However, as a configurer, that is, as the substantial form of a material body, a human soul does not subsist with a complete specific nature. A soul alone is not identical to a human being, nor has it a complete human nature."[56] This, of course, leads to the next statement concerning Descartes' dualism.

**IV. (DDD) Descartes' dualism is denied: Human persons are one composite material substance and not two substances**

Aquinas forcefully rejects anything like Cartesian dualism –including Platonic dualism:

> Accordingly, Plato and his followers asserted that the intellectual soul is not united to the body as form to matter, but only as mover to movable, for Plato said that the soul is in the body 'as a sailor in a ship.'[57]…But this doctrine seems not to fit the facts. For, as a result of contact of power, a thing unqualifiedly one does not arise, as we have shown; whereas from the union of soul and body there results a man. On Plato's theory, then, a man is not one unqualifiedly speaking, nor consequently, is he a being unqualifiedly speaking, but a being by accident. In order to avoid this, Plato asserted [In Alcibades, 129E, 130C] that man is not a being composed of body and soul, but that *the soul itself using the body* is man; just as Peter is not a thing composed of man and clothes, but *a man using clothes*. This, however, is shown to be impossible.[58]

Stump shows that Aquinas elsewhere, as well, anticipates the Cartesian position, well-known from Plato, and rejects it.[59] This means for Aquinas –contra substance dualism as commonly

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[55] Stump, "Non-Cartesian," 516.

[56] Eberl, "Aquinas on the Nature of Human Beings," 345. See also *Quaestiones disputata de spiritualibus creaturis* (*QDSC*) q.un.,a.2.ad.5; *QDP* q.5a.10; *ST* Supp.q.93.a.1.

[57] Aquinas cites Aristotle, *De Anima* 413a 8, where Aristotle references Plato's view. See also *QDSC* un.2.

[58] Thomas Aquinas, *Summa Contra Gentiles, Book Two: Creation*, 169. (II.57.2-5)

[59] In "Non-Cartesian," 506-7. See *ST* Ia.89.a1, "But on this view the soul wouldn't be united to the body for the good of the soul, because on this view a soul united to a body would understand less well than when it is separated from the body…and this position is irrational." See also *QDSC* 2; *QDA* 1.co and 11.co; *QDP* 9.2.ad14, and *ST*

held– Paul is not merely a soul; he is not numerically identified with only his soul. Aquinas says, "The soul is *part* of the human species; for this reason, since it is still by nature unitable [to a body] even when it is separated, *it cannot be the sort of individual substance which is called a 'hypostasis' or 'first substance' any more than a hand or any other part of a human being can.* And so neither the name nor the definition of 'person' belongs to the rational soul."[60] Since, then, we are not seeking to identify a human person *solely* with their immaterial aspect, there remains a large gap of explanation for the Stump/Aquinas model to fill. Aquinas views the soul as the substantial form of the human being (as a matter/form, or body/soul, or ὕλη/μορφη composite); the person is one in-formed material *substance* and not two. It is on this interpretive point where substance dualists, like Plantinga, have disagreed: "There is also the important but obscure view of Thomas Aquinas and his followers. Is this a form of dualism? The question is vexed. According to Aquinas, a human person is a material substance with an immaterial part, the soul. *Aquinas says, of this immaterial part, that it is itself a substance*." [61] But Aquinas clearly says, "body and soul are not two actually existing substances; rather, the two of them together constitute one actually existing substance."[62] Because of the difficultly concerning Aquinas's meaning of 'substance' and 'part', Paul's unity as a human person, according to van Dyke, "would be seriously undermined if both body and soul were independent substances."[63]

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Ia.75.ad2, "the separated soul is a part of [something with] a rational nature, namely, human, but it is not the whole of rational human nature, and therefore it is not a person."

[60] *ST* Ia.29.1.ad5, emphasis added.

[61] Plantinga, "Materialism and Christian Belief," 100-01.

[62] *Summa Contra Gentiles: Book 2 Creation*, 207. (II.69.2). See also *ST* Ia 75.a.2.ad1, "Therefore, as the human soul is a part of human nature, it can indeed be called [*hoc aliquid*] in the first sense, as being something subsistent; but not in the second, for in this sense, what is composed of body and soul is said to be 'this particular thing.'"

[63] van Dyke, "Not Properly a Person," 189; Aquinas, *ST* Ia.118.3.co, "On the contrary, It is said [De Eccl. Dogmat. xiv, xviii] that 'the soul is created together with the body."

An extremely important question arises: what exactly does the Stump/Aquinas model mean by 'substance'? Which among the metaphysical things that Aquinas reifies are properly called 'things'? A foundational question of philosophy lurks, "What is being?" which converges on the question "What is human being?" In order to deny Descartes' dualism, we need to get a grip on the Stump/Aquinas view of 'substance'. The task certainly cannot be completed (or the surface of it barely scratched) here. Aristotle himself recognized "the question which was raised formerly and is raised now and always, and which always causes difficulty, is what being is; and this is the question what *substance* is."[64] It is necessary, though, to nail down a short framework, in order to call upon the ideas with some familiarity.

Recall from statement (A) that a form (μορφη) for Aquinas is that which in-forms the matter into the composite. A composite is the only sort of thing which *is* a 'particular thing' or individual substance or *hoc aliquid* in the proper sense. For human persons, the soul is the form of their material hylomorphic composite. Therefore, the soul (as form) "is precisely the actuality whereby the body has life,"[65] –it is the act of the body, and the body is only potential with respect to the soul, and the compound human being is the thing that is alive.[66] For all things, Stump points out that each form is the actuality of a *hoc aliquid*, and its configuration or organization by such a form is necessary for its existence.[67] A *hoc aliquid* must be complete in being and kind, and so cannot just be either the form or the matter by itself; something must be a composite to be considered a *hoc aliquid*. In other words, matter is potential being, form is

[64] Aristotle, *De Anima* VII.1.5 (1028b2-4). Aquinas points out regarding the questions "what being is" and "what substance is": "the two are one and the same." *Commentary on Aristotle's Metaphysics*, 427. (1260)

[65] Aquinas, *Commentary on Aristotle's De Anima*, 74. (222)

[66] See *ST* Ia.75.1; Stump, *Aquinas*, 202.

[67] Stump, *Aquinas*, 37. Here Stump cites *De principiis naturae* (*DPN* ) 1 (340). Form is "that by which a 'particular thing' [*hoc aliquid*] actually exists." Aquinas, *Commentary on Aristotle's De Anima*, 72. (213)

'entelechy' (i.e. the actuality rendering the matter actual), and a composite of the form and matter is the resulting actual *thing* which is properly a substance.[68]

So: 'substance' is the "primary kind of being"[69] that, according to Aristotle, indicates the *whatness* of a thing ('whatness in Latin being "quiddity," as opposed to quantity or quality, affection, or other sort of accidental property, which are categories of being but not substance). Substance is 'being' in an unqualified sense, rather than a special sense; things that are qualities or have connection with a substance are not themselves substances.[70] Aristotle points out there are four things 'substance' can be used to denote: 1) essence, or again quiddity/'whatness'; 2) universal or abstract thing; 3) a genus (a way of classifying particular things); 4) and a subject, that of which the other three are predicated. (A subject, here, is a *particular* thing, or again a *hoc aliquid*.) It is this fourth use in which we are interested for the Stump/Aquinas model. Substance, then, is "*not* what is predicated of a subject, but that of which all other things are predicated."[71] Hence, a substance in our sense can be considered the *subject*, on the receiving end of any qualifying (accidental) property. And although the ability to receive accidental properties is not itself enough to satisfy a proper definition of 'substance', it is a good start.

Along those lines, Aristotle says two things "belong chiefly to substance" as subject: 1) to exist separately, and 2) to be a particular thing. But an individual substance/particular thing/*hoc aliquid*, for Aquinas, is not necessarily something complete in its being and kind. So the definition of 'substance', over and above 'particular thing', ought to be complete without

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[68] Aquinas, *Commentary on Aristotle's De Anima*, 73. (215)

[69] Aquinas, *Commentary on Aristotle's Metaphysics*, 426. (1248)

[70] Aristotle, *Metaphysics* VII.1-2 (1028a10 – 1028b 32); Aquinas, *Commentary on Aristotle's Metaphysics*, 426. (1251). Further on, in 1256, "Hence, it is obvious that being a man signifies being in an obvious sense, but that being white signifies 'being' with some qualification."

[71] Aristotle, *Metaphysics* VII.3.1-3 (1028b 33 - 1029a 11)

reference to anything else. Aquinas says, "every substance is defined in terms merely of its material and formal principles."[72] Stump points out this definition requirement could be a third condition for 'substance' if it were not for the resulting tricky circularity: i.e. it *could* be only complete things have substantial forms, but the fact that substantial forms are had only by substances is only itself *by definition*.[73] Aquinas himself mirrors Aristotle's two conditions for 'substance' in *QDA* 1, but makes a qualification to distinguish it from his understanding of *hoc aliquids*: 1) independent existence, and 2) complete in species and genus.[74] Though Aquinas *does* refer to the soul as 'substance' in a loose, non-technical sense, the soul only meets the first criterion, since only composites are complete in species and genus and thus a substance.[75]

In regards to the question of how the Stump/Aquinas model is distinct from Cartesian dualism, the formal cause (including a human soul) of a thing is not itself a substance, because some *hoc aliquids* can exist on their own, though they are not substances. Stump points out, "…at best, for Aquinas, the ability to exist on its own is a necessary but not a sufficient condition for something's being a substance."[76] So, things like dismembered hands and disembodied souls are *hoc aliquids*, but not substances because they are not complete things in their own right. They can be defined only in relation to something else (namely the composite human being, which is a

[72] Aquinas, *Commentary on Aristotle's De Anima*, 72. (213) If the definition of a thing depends upon multiple substances, it is properly termed an *artifact*, not a substance.

[73] Stump, *Aquinas*, 42.

[74] See van Dyke, "Human Identity…" 390-1, footnote 5, where she says "The body fails both of these conditions; the soul meets (1), and so in this limited sense it can be called a substance, but it fails (2), and so Aquinas claims that the soul isn't a complete substance." Aquinas says as much, "it does not belong to the soul itself to be in a genus or a species." *QDSC* un.2 ad 16. See also *QDA* 1.co; *ST* Ia.75.2.ad1; *Quaestiones quodlibetales* (*QQ*) 9.3.1.a12.

[75] See van Dyke, "Not Properly a Person," 202, footnote 66, where she points out Aquinas's use of "substance" in this way throughout *ST* Ia.75-89 and *SCG* II.47-101.

[76] Stump, *Aquinas*, 42.

substance).[77] Within a substantial form, the elements making up the composite shed their own particular substantial forms, and there is only one substantial form for a composite. A material substance, then, is prime matter configured by a substantial form, and the constituent things within it are parts (without their own substantial forms) of that composite. Stump says it may be more helpful to think of 'substance' as *emergent* with respect to parts; the parts lose their own forms in constituting the whole. [78] However, we can divide composites into parts, and one substance into several substances. Stump examines it like this:

> …although accounts of emergentism are typically couched in terms of emergent *properties*, on Aquinas's way of thinking about material objects what can emerge when form is imposed on matter is not just properties but substances. When material components are combined into something higher level with a particular configuration, a substance will come into being.[79]

So how is Stump/Aquinas compatible with, while not identical to, Descartes' dualism? There are, after all, roadblocks along the way. Dean Zimmerman cautions, "Unless there is some deep reason to suppose that the real meaning of 'dualist' in our mouths does not track our considered application to individual cases, belief in immaterial formal causes should not be sufficient to make one a dualist."[80] Substance dualists have reason to believe the Stump/Aquinas model is not dualistic enough. Materialists, on the other hand, can assert the model is flawed and not worth the effort, or is, perhaps, nuanced substance dualism with exotic categories. Peter van Inwagen, for example, is incredulous concerning Aquinas's view, but also incorrect:

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[77] Ibid. Stump makes a key distinction: both the hand and the soul are not matter/form composites, but parts of the composite. The hand is an integral part, while the soul is a *metaphysical* part that can exist independently.

[78] Stump, *Aquinas*, 41-43, especially her discussion on how $H_2O$ as water emerges from the properties and characteristics (i.e. form) of water, and not hydrogen or oxygen, both of which lose their respective characteristics once they form the polar covalent bond to make a water molecule. Also, *Aquinas*, 195, "as we increase complexity in systems, even systems of inanimate things, properties emerge which are properties of the whole system but not properties of the material parts of the system." See also Aquinas, *CT* 212 (418); *ST* Ia.76.1; *QDSC* un.2.

[79] Stump, *Aquinas*, 196-7.

[80] Dean Zimmerman, "Three Introductory Questions: Is Analytic Philosophical Theology an Oxymoron? Is Substance Dualism Incoherent? What's in this Book, Anyway?" in *Persons: Human and Divine*, 22.

> [Aquinas] teaches that we are some sort of union or amalgam or compound, of a material and an immaterial substance; and such a union could not be classified as either material or immaterial. But the form the position takes in his work scarcely seems coherent. Thomas thinks that I am a union of my soul and my body, the former being an immaterial substance and the latter a material substance. So far, this is fairly plain sailing.[81]

But, as we have seen above: 1) Aquinas holds the human composite *can* be classified, as *material*; and 2) the soul is *not* immaterial substance or stuff. Again, for Aquinas, the soul is not a substance at all –*hoc aliquid*, yes, but substance, no: "…body and soul are not two actually existing substances, *but instead one actually existing substance arises from these two*."[82] So, it is not so fairly plain sailing for van Inwagen, after all. He continues, "But Thomas also thinks that the soul is the *form of the body*. I do not see, and no one has ever been able to explain to me, how something that is the form of a substance can also be a substance."[83] But, the soul is *not* a substance (see above), and Aquinas never properly referred to it as such.[84] As is plain from Stump/Aquinas, the union van Inwagen speaks of is a body in-formed by the substantial or configurational form, and is material, without question, though not merely material.

It seems Zimmerman, who is weary of identifying Aquinas's view as substance dualism, outright conflicts with van Inwagen. Obviously, at most only one can be correct (though both of them could be incorrect). Ultimately, Stump/Aquinas does not identify Paul merely with his soul, and so the model is, if you will, *clear and distinct* from Descartes'. For Descartes, the soul and

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[81] Peter van Inwagen, "A Materialist Ontology of the Human Person," in *Persons: Human and Divine*, 203.

[82] Aquinas, *SCG* II.69.2, emphasis mine. And especially "For although immaterial substances are not compounds of matter and form, still they are particular things, having actual existence in themselves, and being complete in their own nature. *Not so the rational soul*; for though it has the existence in itself which belongs to a 'particular thing', it is not a complete nature by itself; it is rather a part of a specific nature." Aquinas, *Commentary on Aristotle's De Anima*, 73 (215), emphasis mine. See also *ST* Ia.75.a2 'Reply to Objection 1' and *QDSC* un.2 ad 16.

[83] van Inwagen, "A Materialist Ontology of the Human Person," 203-4. It should be noted that van Inwagen is, here, working from his own ontological understanding of 'substance' he lays out in the beginning of the article in question, which differs from the one presented here in the Stump/Aquinas model.

[84] Though, again, he does loosely, in a non-technical sense, given the soul can meet the first criteria (independent existence) but not the second (complete in species and genus). van Dyke, "Not Properly a Person," 202, footnote 66.

body are separate substances that relate to each other via efficient causation–the model is purely a ghost in a machine, or like Plato's "motor" Aquinas refers to. This is why the Stump/Aquinas model is not exactly like substance dualism. We can consider Aquinas's 'soul' to be more like a dynamic, active blueprint –a form, relating to matter primarily via formal causation. The soul, for Descartes, is only configured, but not a configurer, but for Stump/Aquinas, it is a configured configurer, a *hoc aliquid*; not substance, but it subsists.

So, from statements (A) through (DDD) of the Stump/Aquinas model, we can at least say, so far, that it *is* different from substance dualism. But there are some large metaphysical challenges that still need to be addressed. Does the Stump/Aquinas model answer Plantinga's important question in the affirmative, "Does Paul exist when his body does not?" Yes, in the disembodied state, by holding that Constitution is Not Identity (C ≠ ID). Can the ambiguities many identify concerning this Stump/Aquinas disembodied state and the immaterial (or perhaps material) mind be resolved? Yes, by holding that Dependence is Not Identity (D ≠ ID). In the next chapter I will begin by arguing for the merits these two axioms, both in how they allow the Stump/Aquinas model to be compatible with substance dualism, and in how they allow the model to incorporate the useful elements of the various materialist views.

## Chapter Three

## A Contemporary Image: Metaphysical Challenges

With the previous points of the Stump/Aquinas model as a foundation, there is still a dilemma. In order to have a cogent concept of Paul's bodily resurrection, with personal numerical identity (NID) intact between death and eternal life, serious metaphysical challenges need to be addressed. The job is made somewhat easier by two axioms to help us on our way: Constitution is Not Identity (C ≠ ID) and Dependence is Not Identity (D ≠ ID). The notion of a 'data backup' of Paul's subsisting soul, or configurational state, could tie it all together. But, while promising, the axioms will not prevail against the challenges (particularly specific contours of the mind/body problem and vagueness paradoxes) without a modification.

The challenges are presented by wily and deft interlocutors. Plantinga wants to know if Paul still exists when his body does not –if not, his RA still applies. Nancey Murphy thinks brain localization studies make Paul's mind (νους) an entirely material thing (as the brain), and thus make the soul an obsolete concept. But the most serious of all is one shared by Peter van Inwagen, Lynne Rudder Baker, Dean Zimmerman, Kevin Corcoran, William Hasker, and Trenton Merricks, and is due to what Robert Pasnau calls the "mind-soul problem",[85] which will become painfully evident. All are skeptical of the Stump/Aquinas form or μορφη, that it is ambiguous at best and spurious at worst. I will term it the 'μορφη schmorphe' objection: how

[85] "Just as much as medieval philosophers faced a mind-body problem, [modern philosophers] faced a mind-soul problem: if soul is form and mind is immaterial, then how do the two relate?" Robert Pasnau, *Thomas Aquinas on Human Nature: A Philosophical Study of Summa theologiae Ia 75-89*, (New York: Cambridge, 2002): 160.

does a configurational state, in-forming the material composite, act as the intellective mind with causal and psychological powers? Or vice-versa: how is intellective mind also the configured configurer, giving order to the atoms in our bodies? By the end, I argue Stump/Aquinas needs to be modified. As a result of the focus these challenges bring, Stump/Aquinas's soul will be split into two parts: one, the μορφη, or configured configurer, and the other, the νους, or intellect. How, then, do we make sense of the split, and what does it mean for the bodily resurrection?

**I. (C ≠ ID) For Paul's disembodied NID, Constitution is not Identity**

Plantinga is hesitant to welcome Stump/Aquinas without, first, a question:

> I'll be arguing that it is possible that I exist when my body doesn't; is that a possibility, on Thomas's view? True, on his view my *soul* can exist when my body doesn't, but it also seems, on this view, that I am not identical with my soul. Rather, I am a material object that has an immaterial soul as a part. So (on his view) can I exist when my body does not? If the answer is no, then Aquinas's view is not felicitously counted as a version of dualism; at least it is not among the versions of dualism for which I mean to argue. If, on the other hand, the answer is yes, we can welcome Aquinas (perhaps a bit cautiously) into the dualist camp.[86]

According to Stump, Aquinas's answer to Plantinga's question, "Can I exist when my body does not?" is an unequivocal 'yes'. It is also the case that Paul is a material object not identical with his immaterial soul *per se –and* Paul's rational soul is also merely a formal cause (while embodied). Stump says, in what works well as a direct reply to Plantinga:

> That constitution is not identity in the case of human beings is clear when it comes to integral parts, on either the *macroscopic* or *microscopic* level. A human being can survive the loss of some of his elemental bits (or molecular constituents) or even the loss of some of his larger integral parts, such as a hand. But Aquinas thinks the point about constitution and identity holds also for *metaphysical* parts in the special case of a human being, whose substantial form can exist on its own.[87]

[86] Plantinga, "Against Materialism," 101.

[87] Stump, *Aquinas*, 52, emphasis mine.

So, Stump affirms Plantinga's Replacement Argument (RA) (both macro and microscopic). She delicately shows the personhood status of Paul's disembodied soul by the axiom 'Constitution is not Identity' (C ≠ ID). Let C ≠ ID be Baker's original, eloquent definition: "persons are constituted by bodies, but are not identical to bodies…the relation between Smith and her body is not one of identity."[88] The cliché statement: C ≠ ID entails the whole is greater than the sum of its parts. So material substances, including Paul as a composite, are composed of constituent elements, but not identical to the collection of those elements –or else, incremental change over time would entail a brand new material substance at every moment, which is absurd.[89] The defenders of Stump/Aquinas have all separately identified Baker's Constitution view as friendly to the cause.[90] Baker's most notable point seems to be 'constitution' should be another sense of 'is' alongside 'predication' and 'identity'.[91] These concerns are at the heart of Plantinga's RA, and are the reason his argument is effective.

Aquinas himself fully affirms C ≠ ID. The matter constituting Paul's body can change over time without changing Paul's numerical identity, if his substantial form remains consistent:

> Moreover, the things that are combined with one another do not themselves, having been combined, remain actually, but only virtually; for, were they to remain actually, it would be not a mixture, but only a collection; that is why a body constituted by a mixture of elements is none of these elements.[92]

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[88] Lynne Rudder Baker, "Need a Christian Be a Mind/Body Dualist?" *Faith and Philosophy*, 12, no. 4 (Oct 1995), 494. For the metaphysical nuts and bolts, see Lynne Rudder Baker "Why Constitution is Not Identity," *The Journal of Philosophy*, Vol. 94, no. 12 (Dec. 1997), 599-621; and her *Persons and Bodies: A Constitution View.*

[89] Stump, *Aquinas*, 51. This includes both material change and, of course, incremental psychological change.

[90] For their citations, see Stump, "Resurrection, Reassembly," 165, footnote 24; Stump, *Aquinas,* 482, footnote 16 and 486, footnote 66; Eberl, "Aquinas on the Nature of Human Beings," 337, footnote 19; van Dyke, "Human Identity, Immanent Causal Relations…" 393, footnote 33; van Dyke, "Not Properly a Person," 201, footnote 65.

[91] Stump, *Aquinas*, 55-6.

[92] Aquinas, *Summa Contra Gentiles Book Two: Creation*, 165 (II.56.4). See also *SCG* IV.81 and *ST* Ia.119, as cited by van Dyke, "Human Identity…" 382.

> Hence the Philosopher says that, since one kind of composite is constituted of something in this way "as a whole" –i.e., the whole is one– and not in the way in which a heap of stones is one but as a syllable is one (without qualification), in all such cases the composite must not be identical with its components, as a syllable is not its letters; for this syllable *ba* is not the same as these two letters *b* and *a*, nor is flesh the same as fire and earth.[93]

In this way, a soul would be sufficient as the *identity condition* for Paul over time, without being fully human. Paul's resurrection body need not be numerically identical at the atomic level with his pre-resurrection body, since (given RA) not even his pre-resurrection body could meet such stringent qualifications for numerical identity. Plantinga shows this by considering how often and casually the atoms making up all of the cells in our bodies are completely replaced.[94] To come full circle: if RA and C ≠ ID are true on the microscopic level, and true concerning hands and integral parts, then it is also true of metaphysical parts (body and substantial form/soul).

So, Stump argues that due to both the Replacement Argument (RA) and 'constitution is not identity', having a body is absolutely not essential to Paul's identity continuing over time:[95]

> 1) According to the Aquinas's Aristotelian metaphysics, a thing which gains or loses an accidental form undergoes change while remaining one and the same thing.
>
> 2) According to 'constitution is not identity', a particular substance survives even the loss of some of its metaphysical constituents, provided that the remaining constituents can exist on their own and are sufficient for the existence of the substance.
>
> 3) Aquinas thinks that a human being can exist without being in the normal condition in this way because what constitutes a human being is not the same as that to which a human being is identical.
>
> 4) Therefore, since a) what makes Socrates this individual substance is the individual substantial form which configures him, and b) since the substantial form can exist independently of the body, then c) the existence of the substantial form separate from the body is sufficient for the existence of the person whose substantial form it is.

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[93] Aquinas, *Commentary on Aristotle's Metaphysics*, 551 (1674). See Aristotle, *Metaphysics* VII.17.6 (1041b11-19). Cited by Stump, "Resurrection, Reassembly," 165, footnote 24; and *Aquinas*, 50.

[94] See Plantinga, "Materialism and Christian Belief," 104, footnote 12, where he cites a figure that even the atoms that make up the brain seem to be replaced every *two months.*

[95] The following points are all direct (or nearly direct) quotes from Stump, "Resurrection, Reassembly," 165-6.

This shows clearly how RA and C ≠ ID go *hand-in-hand*: in the same way Paul survives the loss of his integral parts (like a hand), Paul can survive the loss of even the *metaphysical* part of his whole body, because the substantial form of his body (the soul) is able to independently exist as a *hoc aliquid*. Eberl says, "Soul and body, on the other hand, can be understood as metaphysical parts that do not exist without composing a human being."[96] RA merely says material continuity is not required for Paul's NID. But RA *and* C ≠ ID show Paul's subsisting soul is all that is metaphysically necessary, though not natural, for his NID. Thus, Stump says:

> A human person is not identical to his soul; rather, a human person is identical to a particular in the species rational animal. A particular of that sort is normally, naturally, constituted of an array of bodily parts and is composed of form and matter. Because constitution is not identity for Aquinas, however, a particular can exist with less than the normal, natural compliment of constituents. It can, for example, exist when it is constituted only by one of its main metaphysical parts, namely the soul. And so although a person is not identical to his soul, the existence of the soul is sufficient for the existence of a person.[97]

**II. The Data Backup Analogy**

The trouble is how to paint a conceptual picture of this disembodied state (the separated configured configurer) that makes sense. Plantinga floats a helpful kernel of an idea our way, one that has been passed around somewhat. "Not strictly relevant, but of interest: could I perhaps be a *computer* (hardware), a computer made of flesh and blood? There are three possibilities here: I might be the hardware, I might be the program, and I might be the mereological sum of the hardware and the program."[98] When coupled with the possibility –in the midst of his

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[96] Eberl, "Aquinas on the Nature of Human Beings," 338, footnote 21.

[97] Stump, *Aquinas*, 53. See also Stump, "Resurrection, Reassembly," 167, and van Dyke, "Human Identity…" 388-89, ""Because the soul can (and does) persist in separation from matter –unlike all other substantial forms- Aquinas claims that it preserves David's original *esse*…In short, the soul's continuing to exist proves sufficient for David's *esse* to continue to exist." Aquinas, *SCG* II.68.3; *SCG* IV.84; *ST* supp. q.79.a2.ad4; *CT* 153-4.

[98] Plantinga, "Against Materialism," 30, footnote 17. He notes the third option would entail that a person is not a material substance, although given (D ≠ ID), below, that could still be the case.

macroscopic RA– that both the configured configurer and the computational or functional state of the mind are transferred, we get something interesting, but initially vague.

Fortunately, John Polkinghorne fleshes out these intuitions a bit more, by saying, "In a *very* crude image, one might say that the soul is the software running on the hardware of the body."[99] He admits first the concept of 'soul' is still "indispensible for the credible articulation of Christian hope, but its content requires reexamination in the light of contemporary understanding of human nature."[100] He recognizes RA for what it is: the criterion for personal identity cannot be our bodies, for "Materially, we are in a state of flux";[101] Polkinghorne thus suggests we "understand the soul as being the almost infinitely complex, dynamic, information-bearing pattern in which the matter of our bodies at any one time is organized."[102] To him, from the theological side of things, it is coherent to say God will perfectly preserve in memory each individual person's information-bearing pattern, and then re-embody them all in the eschaton.[103]

Baker gives credence to Polkinghorne's view, combining it with two other similar views, the "memory criterion" and the "soul-as-software view."[104] She points out that all of them need to overcome the problem of duplication of such information to retain unique personal identity (which I will address in the next chapter), and of course recommends her Constitution view be

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[99] John Polkinghorne, "Eschatological Credibility: Emergent and Teleological Processes," in *Resurrection: Theological and Scientific Assessments*. Edited by Ted Peters, Robert John Russell, and Michael Welker. (Grand Rapids: Eerdmans, 2002), 52.

[100] Ibid, 50; see also a parallel account in *The Faith of a Physicist: Reflections of a Bottom-Up Thinker*, (Minneapolis, MN: Fortress Press, 1996): 167-8.

[101] Which is exactly how Aquinas puts it, "In respect to matter, of course, the parts are in flux, but this is not an obstacle to his being numerically one from the beginning of his life to the end of it." Aquinas, *Summa Contra Gentiles Book Four: Salvation*, Translated by Charles J. O'Neil (Notre Dame, IN: University of Notre Dame Press, 1975): 306. (IV.81.12)

[102] Ibid, 51, and *The Faith of a Physicist*, 173-4.

[103] Ibid, 52 and *The Faith of a Physicist*, 163.

[104] Lynne Rudder Baker, "Persons and the Metaphysics of Resurrection," *Religious Studies* 43.3 (2007): 344-5.

included for them to be metaphysically successful. Stump/Aquinas upholds C ≠ ID: so far, so good. This means Plantinga, Polkinghorne and Baker all share an intuition about this possible information-backup model, and the missing pieces can come together in the Stump/Aquinas disembodied state. Beyond C ≠ ID, formal causation is affirmed, which seems to be a requirement, as well, as Polkinghorne notes:

> You will recognize that this is an old idea presented in modern dress, for I am saying that *the soul is the form of the body, a thought that would not have seemed strange either to Aristotle or to Thomas Aquinas,* though perhaps I wish to think more dynamically about it than they would have been inclined to do.[105]

So, then, I conclude: Paul, properly *humanae persona*, is the sum of the hardware and the program while embodied. Because C ≠ ID, the "data backup" happens along the lines of the Stump/Aquinas disembodied state before the resurrection. Paul's soul subsists as a *hoc aliquid,* but not as a substance. Paul's soul can be understood to be an ontologically self-extant[106] information-bearing pattern, or *configured configurer,* that will once again do its job and re-*in-form* in the bodily resurrection. Properly understood, it does not make sense to suggest the 'program' *is* Paul, and likewise his substantial form cannot *be* his material composite (which would not just be his brain, since mental states and rationality are properties of Paul simpliciter). But, as attested above, Paul needs *a* body to be fully Paul, to be the composite single substance of Paul. But the pattern of Paul can be perfectly backed up, by God, for the purposes of numerical identity into the bodily resurrection: so Paul does not just have *a* composite, he has *his* composite.[107] Here, 'soul' refers to the essence of Paul: that which is uniquely, individually him

[105] Polkinghorne, "Eschatological Credibility," 51, emphasis mine.

[106] To be ontologically self-extant means to exist independently as a distinct existing thing. This is contrary to Polkinghorne's original intuition that the pattern of Paul is held in the mind of God (a similar idea can be found among Process theology). I will address this more, specifically about consciousness and mind, later in the chapter.

[107] Aquinas says, "Therefore, just as it is of the soul's nature that it is the form of a body, so it is of *this* soul's nature, in so far as it is *this* soul, that it has an inclination toward *this* body." *QDSC* q.un.a9.ad4, as quoted by Eberl,

and the seat of his personhood. So, along with the configured configurer, all mental contents/νους (memory, knowledge, character, consciousness, personality) are "backed up" like data or information. Information is immaterial and abstract by nature, and so satisfies RA.

This works because, under the unmodified Stump/Aquinas model, "the imposition of the configurational state on new matter preserves the identity of the person."[108] The backed up or subsisting soul is (and is doing) two things: 1) Retaining a configurational state (or, if you will, a *blueprint*) of the material composite via the configured configurer in order to re-build it in the resurrection; 2) Retaining Paul's intellectual, or rational aspect, or perhaps what could commonly be referred to as his psychological identity. If it is the case Paul's soul is 'backed up' in this way, then the identity condition is acceptable to answer Plantinga in the affirmative: Paul exists when his body does not.[109] In the realm of possibility, Paul's intellect could be extant as a perfect neural image or brain-map, to be restored like a data image on a backed up computer hard drive, or .iso image[110] for an optical disc (thus, "data backup" analogy). But here, the backup of Paul also includes the blueprint for exactly how his material composite should be configured.

Van Inwagen makes a helpful ontological distinction for processing how this 'data backup' looks in terms of the disembodied state.[111] When we ask of 'being', and then place it

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"Aquinas on the Nature of Human Beings," 352. *ST* Ia.q76.a1.ad6 paralells, "the human soul remains in its own *esse* when it is separated from the body, having an aptitude and natural inclination toward union with the body."

[108] Stump, "Non-Cartesian," 517.

[109] Stump notes, "…the soul is not the complete human being but [Aquinas argues[ for the appropriateness of calling the part (the soul) by the name of the whole (the composite of matter and form that Peter was and will be)." *Aquinas*, 211. See Aquinas, *ST* IIaIIae.83.11 for the quote.

[110] An .iso image is a format for a computer file that contains a literal, direct image of an entire optical disc (like a CD or DVD), which can be transferred and written onto separate blank optical disc to make an exact (verifiable) copy of the original. It is a popular means of transmitting complete images of installation discs for GNU/Linux operating system distributions for download over the Internet, for example.

[111] Van Inwagen does have a few thoughts concerning any computer program analogy. He says, "Whatever I am, I'm a lot more like a poached egg or a waterfall or a hydraulic jack than I am like a computer program; one should

within the context of 'human being', we are coming upon two different shades of 'exist'. So van Inwagen gives us two kinds of existence: concrete and abstract. For him, "there is only one kind of concrete object: that which has traditionally been called 'substance' or 'individual thing'. And there is only one type of abstract object. I will call this one type 'relation'."[112] Whereas the 'concrete' existence is active (as substance), 'abstract' existence is potential (as relation). Van Inwagen balks at calling human persons relations, and concludes "If we exist at all, we're substances."[113] But to borrow van Inwagen's vocabulary for the sake of clarity, I am disagreeing and saying this: for Stump/Aquinas, in the disembodied or intermediate state, the substantial form of the human person (the soul) temporarily goes from metaphysically concrete to abstract, or from substance to relation. Or from existential to extant. Or from active to potential. Or, to be weightier, but also clearer for those who have ears to hear: from μορφη to εἶδος.

Given these loaded terms, there is a live question concerning how Paul's intellective state (consciousness included) continues. We can conceive of it as a "deficient" or "unnatural" form of existence and cognition. In terms of this disembodied state, van Dyke says, "the soul actually has a different mode of cognition that requires divine assistance."[114] In this state, composed only of his soul, Paul does not cease being human; the capacities of a rational animal are still extant,

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therefore take the thesis that I'm a computer program less seriously than one would take the thesis that I'm a poached egg, and that's not very seriously." "A Materialist Ontology of the Human Person," 203. It seems, for Stump/Aquinas, this is apples and oranges (or poached and scrambled eggs). He points out elsewhere that it hardly makes sense to him to consider a fully-grown adult brain as a blank computer disk, because of the biological process of growth and sense reception. Brains atrophy and fail to develop normally when not included in these processes, for example, which speaks to van Inwagen's hunch: a mere transfer of "states" or "information" does not work. He eruditely says, "Remember how long it took all the information that is stored in your brain to actually get there." Peter van Inwagen, "Materialism and the Psychological-Continuity Account of Personal Identity," *Nous* 31, Supplement: Philosophical Perspectives, no. 11, Mind, Causation and World (1997): 308. But whereas he can have justified skepticism for BST arguments like Shoemaker's (against whom he argues), the same cannot be said of an information-bearing pattern "backed up" by God, for the purposes of the bodily resurrection.

[112] van Inwagen, "A Materialist Ontology of the Human Person," 201.

[113] Ibid, 203.

[114] van Dyke, "Not Properly a Person," 190, footnote 21. She points to Aquinas, *ST* Ia.89.1 and *DV* 19.1.

but only in potentiality, since such capacities need material organs in-formed by the configured configurer to be actualized.[115] Paul's soul awaits the hope of being again the *in-former* for the material composite to which it is naturally inclined. The only thing distinguishing the Stump/Aquinas 'data backup' from Polkinghorne's idea is ontological independence. For Stump/Aquinas, the soul subsists as an individual thing, rather than just being "preserved in the divine memory."[116] Van Dyke makes sense of this, "Although the human soul is not available to the natural realm, God still has 'access' to the human soul and can restore the human body by rejoining the body to its principle of action."[117] Stump notes what is at stake:[118] According to Aquinas, Paul's separated soul *must* contain his active mind, with intellectual faculties Paul had in his lifetime, the same will, experiences and passions. So, what is the ontological status of Paul, disembodied? Stump says Paul's soul is clearly a *hoc aliquid*, a something. But to make it more interesting: Aquinas writes in *SCG* IV 91-92 that Paul's separated soul is judged for doing what Paul did during his life in the body, and *afterward* resurrected into his body or composite. If the soul *is not* the numerically same person, then who is getting judged? The Stump/Aquinas disembodied soul, then, must have restricted cognitive powers and be ontologically distinct as an individual thing; cognition and the senses are upheld by divine intervention, in order to retain continuity of the person being raised.[119]

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[115] Eberl, "Aquinas on the Nature of Human Beings," 340; he cites Aquinas, *ST* Ia.q77.a8.

[116] Polkinghorne, "Eschatological Credibility," 52 (see p. 32, footnote 103, above). Van Dyke addresses this, "Human Identity…" 388, where it cannot be the case that "God's using a mere mental blueprint" could recreate Paul, due to the necessity of preserving and restoring Paul's causal connections, including consciousness. His *esse* is not just latent, but instantiated, and still effectively causal, under Aquinas. See *SCG* IV.81.

[117] van Dyke, "Human Identity…" 384.

[118] In Stump, "Resurrection, Reassembly," 155-6.

[119] See Stump, "Non-Cartesian," 519 and *Aquinas*, 211; van Dyke, "Not Properly a Person," 194, footnote 35; see also Aquinas, *ST* Ia.q.89.1 and Ia.q.89.6.

In sum, C ≠ ID means RA, and thus the requirement from dualism, is satisfied. The disembodied state subsists, and it would look much like the backup of an information-bearing pattern as described by Polkinghorne, except that for Stump/Aquinas, the subsisting soul is ontologically independent –but still somehow upheld by divine intervention for cognizing. Paul's subsisting soul can count as an identity condition over time for his resurrection self. But, the mind-soul/'μορφη schmorphe' objection still looms. How do we incorporate the mind into the 'data backup' model of the Stump/Aquinas disembodied state? The functioning of the brain as emerging from the material composite could work as long as Paul is embodied. But how do we conceive of this switching between states? This calls for the sixth and final statement of the Stump/Aquinas model. Since it comes accompanied by some deep metaphysical challenges, it demands that the model be modified if it is to succeed.

**III. (D ≠ ID) Between the brain and mental states, Dependence is Not Identity**

Plantinga entertains one argument among a few he recognizes for materialism: brain localization and dependence of mental states upon material brain states. He says, "It isn't true at all that it makes very little sense to say that activities of the immaterial self or soul are dependent in this way on the proper function of the brain. Still, this argument from localization and neural dependence is perhaps the strongest of the arguments against dualism."[120] Plantinga sees Nancey Murphy, among others, arguing how science identifies certain parts of the brain are responsible for rational processes like language, emotion, musical ability, or complex problem solving. Indeed there are, he says, countless first-hand experiences of drug use, degenerative neurological disorders or other diseases, taking prescriptions to alter brain chemistry, and even getting hit in the head to show that the brain certainly has *something* to do with mental states.

[120] Plantinga, "Materialism and Christian Belief," 134.

In particular, there are a few cases that have become fairly common currency in these types of discussions. One is Phineas Gage, a Vermont man who in 1848 suffered and survived an accident where a three foot, seven inch long and 1.25 inch diameter tamping rod went straight through his frontal lobe (specifically parts of his prefrontal cortexes), and seemingly altered his temperament and personality –and not just as a reaction to the accident (for who *wouldn't* feel a bit different after an accident like that?), but as a result of the destroyed part of the brain.[121] Although the more well-known details surrounding the extent of his character change are infamously cloudy and documented sometime after the event, it is at least a rare, clear, and also dramatic example of someone's physical brain so surely having an effect on their mental states. Phineas Gage's historical case seems to point toward brain localization.

More recently Clive Wearing, a British conductor and musicologist, in 1985 contracted herpes simplex encephalitis, a viral infection that normally produces cold sores –but for him, it infected and destroyed his left frontal and temporal regions, the parts of the brain partially responsible for storing conscious memories.[122] He developed severe anterograde amnesia (so he cannot form any new short-term memories) *and* retrograde amnesia. That, alone, for many proves mental states' dependence upon the brain. What is more intriguing is what he *can* do: Wearing's procedural memory is apparently unaffected. He can still read and play music with the same rehearsed dramatic force and brilliant interpretation as he could before the illness.[123] The hypothesis is that one part of the brain controls the sort of memory utilized in performance and

[121] The most accessible and lucid account, with an eye on the philosophical issues, is Antonio Damasio, *Descartes' Error: Emotion, Reason, and the Human Brain* (New York: Avon Books, 1994), especially Chs. 1-3. Nancey Murphy has cited Damasio upon mention of Gage's story, see *Bodies and Souls, or Spirited Bodies?*, 66-7.

[122] Wearing's story can be found in Oliver W. Sacks, "In the Moment: Music and Amnesia" in *Musicophilia: Tales of Music and the Brain*, (New York: Vintage Books, 2008), 201-231. Kevin Corcoran brings up Wearing as a starting point for Christian materialism in "A New Way to Be Human," *Books and Culture: A Christian Review*, (Nov/Dec 2006), http://www.christianitytoday.com/bc/2006/006/16.33.html

[123] Sacks, *Musicophilia*, 218-19.

rote memorization of music and all of its intricacies, and a different part seems to control personality and other aspects. Wearing and his damaged brain seem to be living proof of brain localization, and perhaps Murphy's nonreductive physicalist model and others like it.

From the materialist point of view, here is the underlying challenge: does localization and dependence of the brain by behavioral and personality traits and other mental states make the immaterial soul an unnecessary concept? In stride, Plantinga's rejoinder to Murphy's, and others', arguments from localization is, for him, characteristically pithy: "Does this show or tend to show that this mental activity is really an activity of the brain, rather than of something distinct from the brain? Hardly. There are many activities that stand in that same or similar relation to the brain."[124] By similar reasoning, observes Plantinga, one could say walking, speaking, moving your fingers, breathing, and digesting are also functions of the brain, since they all depend upon proper function of the brain (although the parallel organ for mental states is not so apparent, as Aquinas himself says in *QDA* 1 and 2). This is where he introduces D ≠ ID:

> The point, obviously, is that *dependence is one thing, identity quite another*. Appropriate brain activity is a necessary condition for mental activity; it simply doesn't follow that the latter just is the former…We know all sorts of cases of *activities A that depend upon activities B but are not identical with them*. Why should we think differently in this case?[125]

Stated in this way, D ≠ ID is basically C ≠ ID but related to mental kinds –i.e. just as Paul's material composite is constituted by, but not identical to, his body, so too Paul's mental states are dependent upon (perhaps even materially and efficiently caused), but not identical to, his brain states. Consider D ≠ ID to be the metaphysical cousin of C ≠ ID, just pointed at νους.

Murphy has taken the mantle of the materialist/physicalist position, going so far as to say, after mention of Phineas Gage's case, "In short, what [Aquinas] described as the 'appetite for the

[124] Plantinga, "Against Materialism," 23.

[125] Ibid, 23, emphases mine; see also "Materialism and Christian Belief," 134-5.

good' appears to depend directly on localizable brain functions."[126] She argues that the mind *is* dependent upon the brain, which is enough to make Aquinas's concept of the soul obsolete. Her view of the contest between dualism and physicalism is a novel one: each is not merely "a philosophical thesis but as the 'hard core' of a scientific research program…based on the philosophy of science of Emre Lakatos, who argued that research programs in science are unified by metaphysical theses about the essential nature of the subject matter under investigation."[127] Riding the momentum of invoking Lakatos, she believes "a philosophical case for mind-body dualism (or body-soul dualism) is in fact *hopeless*."[128] Murphy wants to show how we ought to operate upon a contemporary scientific paradigm, or research program, whereby mental states are, in contrast to D ≠ ID, dependent upon *and identical to* their requisite brain states.[129]

Beyond that, her presuppositions leading into her treatment of Aquinas deserve attention. Murphy categorically breaks down mental characteristics from neuroscience that Aquinas historically relegated to the soul, to make a case for Aquinas's obsolescence.[130] But given the Stump/Aquinas Aristotelian causality discussed above, what Murphy intends as a critique of Aquinas's medieval view can actually be inverted into support for Stump's interpretation –even the exact words could be read in a different tone and this inversion could be expressed. Causality shows how baseless Murphy's strategy is given the distinction between the in-forming soul being

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[126] Murphy, *Bodies and Souls, or Spirited Bodies?* 67.

[127] Nancey Murphy, "Nonreductive Physicalism: Philosophical Challenges," in *Personal Identity in Theological Perspective*, Edited by Richard Linds, Michael S. Horton, and Mark R. Talbot, (Grand Rapids: Eerdmans, 2006), 98.

[128] Nancey Murphy, "The Resurrection Body and Personal Identity: Possibilities and Limits of Eschatological Knowledge," in *Resurrection: Theological and Scientific Assessments*, 203, footnote 4.

[129] "It is becoming obvious to many that the functions and attributes once attributed to the soul or mind are better understood as functions of the brain." Murphy, *Bodies and Souls, or Spirited Bodies?* 40.

[130] Murphy, *Bodies and Souls, or Spirited Bodies?* 56-68. These include locomotion, appetite, sensation, and emotion, as well as the passive, active, and will aspects of the rational soul. Murphy cites quite a few brain localization studies which have shown how these are controlled by specific areas of the brain.

the *formal* cause of the material body's processes, while the organs it in-forms (including the brain) are the *efficient* cause of those processes. With this formal-efficient causal relationship in mind, it is possible to carefully balance D ≠ ID from Stump/Aquinas and still acquiesce with the findings of modern neuroscience. But Murphy's point of view holds her back, and is precisely of the sort Stump anticipates and attempts to dissolve by comparing physicalism/materialism alongside Aquinas, when she says:

> At this point it might occur to someone to suppose that it can hardly be surprising that Aquinas's account of the soul is not readily assimilable to either dualism or physicalism; the difficulty in categorizing Aquinas, such a person might think, stems from trying to insert a peculiarly medieval theory into the contemporary discussion, where it simply will not fit. But I think this is a mistaken attitude.[131]

Stump actually offers up the possibility that Aquinas *could be construed as a materialist* with a metaphysical reason for rejecting reductionism. Though he would not say the mind is identical to the brain, Stump says "for Aquinas the mind is immaterial but implemented (in its natural condition) in matter."[132] So Aquinas's view of the soul can be successfully held alongside materialism's understanding of the brain as the locus on mental activity, due to D ≠ ID. It seems, then, Murphy's view that Aquinas's understanding of the soul is incompatible with her own nonreductive physicalism is throwing the baby out with the bathwater. If we introduce Stump's interpretation of Aquinas, above, many of Murphy's observations can be assimilated. Besides Stump and her supporters, Baker,[133] Hasker,[134] Corcoran,[135] Zimmerman,[136] and Plantinga[137] *all*

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[131] Stump, *Aquinas*, 213.

[132] Stump, "Non-Cartesian," 519.

[133] Baker, "Need a Christian Be a Mind/Body Dualist?" 500.

[134] Hasker, *The Emergent Self*, 166-7.

[135] Corcoran, *Rethinking Human Nature*, 38-9.

[136] Zimmerman, "Three Introductory Questions…" 22.

admit, after close readings, that Aquinas's human persons work with materialist anthropology. Why, then, would Murphy dismiss Aquinas? Are these philosophers wrong and Murphy right?

Not likely. Derek Jefferys argues against Murphy concerning her treatment of Aquinas, and lack of adequate conception of metaphysical causation to support her proposed downward causation model, among other issues.[138] Murphy responds, since Aquinas is ancient/medieval his terminology and his Aristotelian metaphysical research program ought to be replaced by something more relevant to current scientific anthropology. She uses Lakatos as support, citing "incommensurability" between the two systems.[139] Jefferys thinks this is an inadequate response:

> Throughout American and European philosophy departments, philosophers are rediscovering Thomas and Aristotle. Martha Nussbaum, John Finnis, John Haldane, Alasdair MacIntyre, Leon Kass, and many others are reviving Aristotelian and Thomistic concepts, applying them to ethics, the philosophy of mind, and the philosophy of science. They have no difficulty understanding the philosophical grammar of Thomas and Aristotle, and combine it with contemporary philosophy and science in fascinating ways.[140]

To follow Jefferys's lead, before Murphy can play her Kuhn/Lakatos card[141] and contextualize the debate away, she ought to read more of the available literature on Aquinas (perhaps even Stump's work, whom Murphy never cites). The end result of allowing equal footing to Aristotelian metaphysics has been shown to be quite helpful to some contemporary studies. For Stump, asserting Aquinas's possible compatibility with modern neuroscience is yet another example of this, one that should not be so quickly ignored.

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[137] Plantinga, "Materialism and Christian Belief," 101.

[138] Derek Jeffreys, "The Soul is Alive and Well: Non-reductive Physicalism and Emergent Mental Properties," *Theology and Science* 2, no. 2 (2004): 205-225.

[139] Nancey Murphy, "Response to Derek Jeffreys." *Theology and Science* 2, no. 2 (2004): 227-230.

[140] Derek Jeffreys, "A Counter-Response to Nancey Murphy on Non-reductive Physicalism." *Theology and Science* 3, no. 1 (2005): 84.

[141] For her use of Lakatos, which is admittedly excellent, see *Beyond Liberalism and Fundamentalism, How Modern and Postmodern Philosophy Set the Theological Agenda*, (Valley Forge, PA: Trinity Press, 1996), 100-103.

**V. Stump/Aquinas, D ≠ ID, νους, and the Data Backup**

From Murphy, we must heed the fact that brain imaging and modern neuroscience shows that the physical brain at least plays a role in attributes that were previously relegated only to the immaterial soul. So the task, now, is to show first how Aquinas supports D ≠ ID, and second show how the Stump/Aquinas model accommodates what we *can* say regarding the way mental states depend on the brain. Of course, Aquinas is not a *materialist* in the overarching metaphysical sense of the term:[142] recall that God is a person by Boethius's definition and is a μορφη that does not *in-form* ὕλη because He is pure act. Humans are corporeal and spiritual in substance, whose substantial forms (souls) can subsist apart from the ὕλη they would properly in-form in their single-substance composite. Aquinas, then, matches Plantinga's sentiment, when he says in *SCG* Book II: "intellectual natures are subsistent forms, and although they [that is, intellectual natures] exist in matter, *their being does not depend on matter*."[143]

So, right away, we have a contemporary axiom (D ≠ ID) with a medieval analogue. What we also have is an admission that intellectual natures "exist in matter." This is exactly why Stump says, for Aquinas, "mental states will be implemented in matter," and his account of the soul, then, is "compatible with supposing that mental states are implemented in neural stuff."[144] This is a significant assertion we can build upon, and is at the heart of the idea of substance-emergence that Hasker found so very promising with Stump's model:

> I close this chapter by referring to yet another saying of Stump's that I find puzzling, yet also full of promise…What intrigues me in this is the suggestion that Aquinas might have thought that 'the mind emerges from the functioning of the brain.' [Stump, "Non-Cartesian," 520] What does Stump mean by this? Clearly, the historical Aquinas would *not* have thought this, given his doctrine of the

[142] Stump, *Aquinas*, 15.

[143] Aquinas, *Summa Contra Gentiles: Book 2 Creation*, 151 (II.51.1ff); as cited by Stump, *Aquinas*, 209.

[144] Stump, "Non-Cartesian," 521.

> special creation of individual souls –a doctrine which Stump refers to several times. Does she mean that he *should* have thought this way, and perhaps would have done so had more scientific knowledge been available to him? Or is the notion of emergence here to be understood in some way that is compatible with Aquinas's creationism?[145]

It is correct to say that Stump affirms Hasker's premonition. If Aquinas had more scientific knowledge, his understanding of the relationship of mind to the brain, and therefore his understanding of the soul, may have been more nuanced. (Furthermore, I intend to show in the next chapter that the added contemporary knowledge of DNA has a similar helpful effect toward interpreting and applying Aquinas's view of the soul.) Note also that this important assertion, "the mind emerges from the functioning of the brain," is why Swinburne is correct to say Aquinas does not recognize the category of "soul stuff."[146] It is because for Aquinas, and thus the Stump/Aquinas model, while the material composite is functioning (and the soul is not disembodied), it is "brain stuff" or "neural stuff" doing the work –an insight from which Murphy's reading of Aquinas could benefit. And, again contrary to Swinburne, Stump assuages what Plantinga had also been skeptical of, "The immateriality of the soul is [for Aquinas] a direct consequence of his view of soul as a form."[147] In other words: the Aristotelian framework in-forming the material composite makes the immaterial soul a reality. But how? Again, think of the human soul, the amphibious configured configurer, as the *formal*, but not *efficient*, cause of mental states and other casual connections, which are then only immaterial when unnaturally 'backed up' in the disembodied state. In other words, "the various parts of the body are configured by [the soul] in differing ways."[148] It makes the whole thing possible by in-forming

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[145] Hasker, *The Emergent Self*, 170.

[146] Swinburne, *The Evolution of the Soul*, 297. See pp. 14-15. above.

[147] Stump, "Non-Cartesian," 511.

[148] Ibid, 512.

the materials from which mental states emerge –but the soul is not a wispy spirit-form that does the thinking while the brain is the material foundation for the soul's activity. Thus, Stump says:

> …Aquinas thinks that there is something misleading about attributing cognitive functions just to the soul itself. Rather, even such higher cognitive functions as understanding are to be attributed to the whole material composite that is the human being.[149]

This is reinforced by Aquinas himself in SCG II.50: "if an intelligent substance is composed of matter and form, understanding will be of the composite itself."[150] While the point of SCG II.50 is actually to show intelligent substances *are not* composed of matter, this is to uphold the consistency of Boethius's definition of 'person', which must of course also include God and angels. However, this specific part makes clear that, for human persons, their intellect, if from the composite, will be of the composite. This is how Stump can get away with saying things like, "If we can understand the intellective part of the human soul as roughly equivalent to the mind, then for Aquinas the mind is immaterial but implemented (in its natural condition) in matter."[151] She clearly distinguishes parts of the soul, i.e. "intellective part," because Stump recognizes the 'configured configurer' which in-forms the material composite must be somehow different from the intellective mind or νους.

We should be keeping in sight what Murphy and others bring up in regards to localization and the dependence of mental states upon the brain. The Stump/Aquinas model, in terms of the intellect, holds the human soul is the *formal*, not *efficient*, cause of mental states and other casual connections, and the soul is immaterial only unnaturally in the disembodied state. The capacities and activities of the soul, including intellect, are in this way realized through the material organs

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[149] Ibid, 512. See Aquinas, *ST* Ia.q75.a2.ad2; *ST* I.q77.a5; *QDSC*.q.un.,a2.ad2.

[150] Aquinas, *Summa Contra Gentiles: Book 2 Creation*, 150 (II.50.4).

[151] Stump, "Non-Cartesian," 519.

of the in-formed composite. The five senses, for example, are properties of the material composite, and require the proper organs (eyes, ears, nose, and so forth) to operate. The brain and nervous system, then, are the efficient cause for mental states and likewise require a body.[152] The soul, as 'configured configurer', is the formal cause for all of this. Thus, "On Aquinas's account, there is no efficient causal interaction between the soul and the matter it informs, and all cognitive functions can be implemented in the body."[153] These capacities, mental states included, are properly attributed to the composite of Paul, not to his parts –including the brain.

However, as stated earlier, given what Aquinas says about the separated soul in the disembodied state, he would affirm the apparent dependence of mental states upon the brain, but not think that the mind is *identical* to the brain if he had known enough neuroscience today. Ergo, D ≠ ID. If mental states are dependent upon, but not identical to brain states in this way, then the brain's configurational state, or neural map, or however we could conceive of it, could backed up immaterially as information. Loosely, the disembodied, 'backed up' soul can still think because of God's agency in upholding that power.[154] To reiterate, this state is of a deficient sort. Aquinas says, "although the soul can exist and intellectively cognize when it is separated from the body, nonetheless it does not have the perfection of its nature when it is separated from the body."[155] So according to Aquinas, while embodied, Paul's mind is able to be measured by brain scans, neurological science, and the like, and is very much like an emergent property akin

[152] Eberl, "Aquinas on the Nature of Human Beings," 343; he cites Aquinas, *QDA* q.un.a2 and *ST* Ia.q101.a2.

[153] Stump, "Non-Cartesian," 518.

[154] "As for knowledge of material things in the world that would ordinarily be cognized with sense perception, Aquinas attributes the disembodied soul's ability to cognize such things to divine intervention." Stump, *Aquinas*, 211. Also van Dyke, "Not Properly a Person," 194, footnote 35: "thus, although the human soul exists in separation from matter at death and prior to the bodily resurrection, it can engage in intellective cognition in that state only through the mediation of God and/or the angels." Both cite Aquinas, *ST* Ia.89.1 and 89.6.

[155] Aquinas, *QDSC* un.2 ad 5, as quoted by Stump, *Aquinas*, 201.

to Hasker's model: "material components are combined into something higher-level with a particular configuration, a substance will come into being,"[156] But in the case of the Stump/Aquinas model, the mind does not go away in the disembodied state, either; rather, in the bodily resurrection, it is restored to its proper, composite, state.

**VI. "Μορφη Schmorphe" and Mind-Soul Make a Modification Mandatory**

Given C ≠ ID, Stump/Aquinas can affirm RA, and thus the requirement from dualism. Given D ≠ ID, Stump/Aquinas avoids the objections raised by dualists against materialists. So, we can get the blessing from substance dualists, as well as the useful parts of the different materialisms, including the deliverances of the Constitution view and an understanding of mind or νους somewhat like an emergent property of the material brain (while embodied). Now that these details are worked out, we see that if brain localization is a strong point for materialists, then the Stump/Aquinas model can accommodate it in an embodied material composite. When we combine all of these elements together: C ≠ ID, D ≠ ID, the immaterial *in-form-ation* of the configured configurer, and the analogy of a data backup of that configuring form, and we add to it the information of Paul's mind or νους, we get a model for individuation of human persons, and a model for the continuity of personal NID, preserved for the bodily resurrection. Or do we?

Our wily and deft interlocutors, after all, have been waiting in the wings. Baker says, "It is difficult to see how Aquinas can combine the Aristotelian view that matter individuates with his view that the soul is a substantial form that can 'subsist' –and experience God– apart from a body."[157] Zimmerman likewise says, "What is harder to see is how something capable of playing the role of a 'substantial form' could come to be able to think after death, while not 'informing'

[156] Stump, "Non-Cartesian," 511.

[157] Baker, "Persons and the Metaphysics of Resurrection," 344.

any matter."[158] Plantinga puts it this way, "A form, however, at least as far as I can see, is or is like a *property*; and a property, presumably, *can't* think. If the soul is a form, therefore, how can it be capable of thinking?"[159] Van Inwagen makes his case more bluntly than the rest, "wouldn't the union of my body and the form of my body, whatever the form of my body may be, be simply my body? And isn't my body, without qualification, a material substance?"[160] Corcoran does Stump's view more justice, but sees the problem of immaterial substances has just been pushed back from human-identical souls to configuring forms-as-souls. Incomplete substance though they may be, Stump/Aquinas souls still seem to be of some sort of immaterial kind, and the resulting disembodied state seems to be incoherent, to Corcoran.[161] Hasker, who like Corcoran is charitable to the Stump/Aquinas model, similarly finds Stump's 'form' to be ambiguous when dealing with a subsisting soul as human intellectual mind, insofar as it is still too similar to substance dualism, in his view.[162]

All of these objections reduce into one proviso about the Stump/Aquinas model, 'μορφη schmorphe'. All of the above ambiguities surrounding μορφη center on NID over time for the bodily resurrection, whether they are directed toward the question of persistence apart from the body (as with Baker, van Inwagen, Corcoran, and Hasker), or more particularly toward psychological continuity as NID, and how therefore an immaterial substance can think (as with

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[158] Zimmerman, "Three Introductory Questions…" 21.

[159] Plantinga, "Materialism and Christian Belief," 101, see also "Against Materialism," 23.

[160] van Inwagen, "A Materialist Ontology of the Human Person," 204. Van Dyke also clearly asks the question, "How, for instance, can the blueness associated with David's eyes meaningfully be said to inhere in his rational soul –as opposed to, say, inhering in his living body? Claiming that the blueness inheres in a 'physical structure dependent on the soul' is, after all, not the same as claiming that such blueness inheres in David's soul itself. The same problem arises for all of the properties typically associated with David's physical body. At best, it seems that David's soul would possess those properties derivatively or in virtue of his body's possessing them –surely not something that bolsters the *soul's* claim to being a substance." van Dyke, "Not Properly a Person," 193.

[161] Corcoran, *Rethinking Human Nature,* 37-40.

[162] William Hasker, *The Emergent Self,* 161-170.

Zimmerman and Plantinga, and also Baker). So, there are two forks to 'μορφη schmorphe': 1) if soul/μορφη is ambiguous, it cannot properly handle Paul's disembodied state and also be the criterion for his NID over time; 2) if mind/νους is ambiguous, Stump/Aquinas will not be able to really discern whether it is immaterial or a property of Paul's composite. But how *does* νους contain the blueprint to in-form Paul's material composite? How is a μορφη blueprint, formal causation and all, still the efficient cause for his mental states? If νους belongs to an entity distinct from Paul's body, and the soul as configured configurer is the μορφη of Paul, then *how* is νους part of his subsisting soul? It seems obvious: for the Stump/Aquinas model, the soul must be, somehow, two parts comprising one soul, or μορφη plus νους.

Pasnau, in fact, recognizes this dilemma in the midst of identifying the mind-soul problem for Aquinas: "there are considerable pressures on an Aristotelian to pull the two [soul and intellect] apart. Aquinas is not entitled to assume that facts about the intellect can be parlayed into facts about the soul."[163] In *ST* Ia.q77, Thomas attempts and only lightly gives us that split picture of the two jobs of the disembodied soul, as Pasnau also illumines:

> [Aquinas] wants to say that the rational soul is the form of the body, in one respect, and not the form of the body, in another respect. As regards its essence, the soul precisely is the form or actuality of the body. But intellect, the soul's intellective capacity, is neither the form nor the actuality of any body.[164]

Pasnau says that if Aquinas wants to uphold the soul both as configurational form subsisting after death *and* as immaterial intellect/νους, he must do so while simultaneously showing the νους is part of that configuring form, or else *ST* Ia.q77.a5 is in danger of becoming a circular argument: the intellect exists in the soul as its subject, and we know this because the soul is the

[163] Pasnau, *Thomas Aquinas on Human Nature, 162.*

[164] Ibid, 159.

configuring form of the composite, which is a substance, which is a subject.[165] This is exactly what Aquinas does back in *ST* Ia.76.1c, "this principle through which we first intellectively cognize, whether it be called intellect or the intellective soul, is the form of the body." Pasnau indicates Aquinas's strategy, here, "is to establish the unity of soul and body by focusing on the hardest case, that of intellect. If he can show that *intellect* and body are unified, then the same can be shown, straightaway, for the rest of the soul."[166] Here is what this means for us: feasibly, if the νους is somehow a property of the in-formed composite, and the μορφη has a role in formally causing and configuring what is necessary for Paul's νους to develop, *and* if D ≠ ID is enough to show Paul's νους is not identical to his material composite (or brain states), *and* if C ≠ ID successfully demonstrates Paul can still be Paul while undergoing incremental material change over time, then there could be an answer to 'μορφη schmorphe' –albeit an extremely complex one. But who said a solution to the individuation of persons would be easy?

To complicate things even further, concerning Aquinas's position, Trenton Merricks thinks because a composite (Thomistic) dualist denies Paul is identical with his soul (though holding the subsisting soul still has mental properties), the Thomistic dualist must say there are two objects with Paul's mental properties, Paul and his soul.[167] At least, there, we can argue (given C ≠ ID and D ≠ ID) we are still talking about the same numerical person –Paul is just 'backed up' in the disembodied state as a subsistent soul. Same soul, same Paul, just waiting to be resurrected. But, even if μορφη is worked out in the proposed way above (i.e. by splitting the rational soul into μορφη and νους), then concerning the resurrection and individuation of persons

[165] Ibid, 163.

[166] Ibid, 164.

[167] Trenton Merricks, "The Word Made Flesh: Dualism, Physicalism, and the Incarnation," in *Persons: Human and Divine*, Edited by Peter van Inwagen and Dean Zimmerman (Oxford University Press, 2007), 282, footnote 2.

in general, Merricks might be able to show Stump/Aquinas's subsisting soul still only seems to be an enduring psychological continuity criterion for NID over time. The ambiguity about μορφη just makes the NID problem low-hanging fruit: if material continuity over time is insufficient for NID, and psychological continuity (aka the "memory criterion") is likewise insufficient for the NID of persons, then personal NID over time must be a "brute fact" and we ought to be realists about it, instead.[168] So, given the different versions of 'μορφη schmorphe' (including Merricks's version), we have sincere troubles making C ≠ ID and D ≠ ID work for the Stump/Aquinas model to satisfy the criteria for NID over time for the resurrection. It needs a modification: that can make sense of the necessary split between μορφη and νους; that upholds μορφη as configured configurer; that nuances the Stump/Aquinas disembodied state/subsisting soul; that shows νους can be implemented in the material composite but not identical to the brain states therein. We need that modification, or else Merricks is right: personal NID is just a brute fact.

[168] See Trenton Merricks, "There are No Criteria of Identity Over Time," *Nous* 32, no. 1 (Mar 1998), 106-124; "Endurance, Psychological Continuity, and the Importance of Personal Identity," *Philosophy and Phenomenological Research* Vol. 59, no. 4 (Dec 1999): 983-997; "The Resurrection of the Body and the Life Everlasting." In *Oxford Readings in Philosophical Theology, Vol. II*: *Providence, Scripture, and Resurrection*. Edited by Michael Rea. Oxford: Oxford University Press, 2009: 364-385; "Realism About Personal Identity Over Time." *Philosophical Perspectives*, Vol. 15, *Metaphysics* (2001): 173-187.

## Chapter Four

### The Modification: DNA, and the Resulting Objections

Let us re-cap the argument so far. In chapter two, I argued for the first four points of the Stump/Aquinas model: (A) Aristotelian metaphysical causality: soul is hylomorphic form (B) Boethius's definition of person: human persons are metaphysical amphibians; (CC) Configured configurer of the material composite is Stump's 'soul'; (DDD) Descartes' dualism is denied. Human persons are one composite material substance and not two substances. Aristotle's four causes are at the forefront to think within Aquinas's metaphysical context about the soul, which is "the first principle of life in things that live among us."[169] The most important is formal causation (μορφη), because the Stump/Aquinas *human* soul, as substantial form, *in-forms* prime matter into the material composite of the human body and the soul-as-form. Boethius's definition of a person ("an individual substance with a rational nature") means the nature of human beings as immaterial minds expressed in a material composite is metaphysically amphibious. The human soul, as configured configurer, is unique as the only μορφη that survives the matter it in-forms –it subsists. But the disembodied soul only meets the criteria for being a *hoc aliquid* (particular thing) and not the criteria for 'substance' for Aquinas.[170] So the subsisting, separated soul is not a substance as so cautiously crafted by Aristotle, Aquinas, and Stump, and this distinguishes the model from substance dualism.

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[169] *ST* Ia. 75.1, as cited in Stump, *Aquinas*, 15.

[170] Recall, 1) independent existence, and 2) complete in species and genus. See van Dyke, "Human Identity…" 390-1, footnote 5 and Aquinas, *QDA* 1.co; *ST* Ia.75.2.ad1.

In chapter three I argued the Stump/Aquinas model answers Plantinga in the affirmative, "Does Paul exist when his body does not?" with '(C ≠ ID) For Paul's disembodied NID, Constitution is not Identity'. To give the Stump/Aquinas disembodied state more clarity, I introduced the 'data backup' analogy via Polkinghorne's information-bearing pattern. I then argued that the ambiguities many identify concerning Stump/Aquinas and the intellect can be resolved with '(D ≠ ID) Between the brain and mental states, Dependence is Not Identity'. Since brain localization is a potential weak spot for dualism but a strong spot for materialism, I argued that Stump/Aquinas can include the findings of modern neuroscience (and thus the materialists' big reason for holding their view) with D ≠ ID, and the mind 'backed up' along with the configured configurer. But, even with these two axioms, some metaphysical challenges highlight the Stump/Aquinas model's confusing Achilles' heel: the ambiguity of 'form' (the 'μορφη schmorphe' objection) and its bearing on the problem of NID for the resurrection. It seems the Stump/Aquinas soul must be understood somehow as a μορφη part and a νους part in one unqualified soul. But if it still reduces to a psychological continuity model (and if NID models based only on psychological continuity do not work), then NID is a brute fact, and Stump/Aquinas has nothing worthwhile to offer.

However, I will argue that it most certainly does have something to offer. My ambitious purpose in this chapter is to show DNA can be understood as the contemporary analogue for the Stump/Aquinas 'configured configurer' of the composite human person. Along with this claim comes the hermeneutical charge to read Aquinas differently on soul, and many objections that need to be addressed. I hope to show that just as Democritus can be seen as a herald of modern atomic theory, so too, we can say Aquinas saw DNA's day and was glad.

**I. De Anima, DNA**

Aquinas, himself, identified the inadequacy of physical atoms as the criteria for personal NID. But instead of saying NID is a brute fact, he offered up a possible solution in SCG IV.81.12-13, Aquinas's primary text on NID and the resurrection. Swinburne elucidates Aquinas's move, and unwittingly sets up the possibility for DNA as the solution. Swinburne starts by identifying the antiquity of the NID problem, with the cannibal thought-experiment and the resulting question, if matter is what counts for the identity condition, and the matter of many persons is now part of the cannibal who ate them, how do we sort out the conflicting matter-claims for the multiple resurrected bodies that need it? Swinburne says Aquinas starts his answer by saying, "if something was materially present in many men, it will rise in him to whose perfection it belonged," or whatever part of the body essential for Paul to be Paul will belong to Paul in the bodily resurrection.[171] But what *part* is that, and how do we safeguard from it not coming from someone else's essential matter? Swinburne thinks he has Aquinas in a corner:

> Aquinas goes on to produce an argument that the 'radical seed' (i.e. the sperm, which according to Aristotle formed the original matter of the embryo) forms the minimum essential bodily core around which a man could be rebuilt. But we know now, as Aquinas did not, that the sperm does not remain as a unit within the organism…The atoms of the original cell are not therefore the most plausible candidate for being the part of the body physically necessary for human personal identity. *Aquinas's problem remains without modern solution.*[172]

But let us consider what Aquinas is really saying in this section. Back in IV.81.12, just a subchapter prior, he says, "it is not with respect to matter that he has the same parts, but with respect to his species."[173] Aquinas thinks through the problem of a person materially changing

[171] Swinburne, *The Evolution of the Soul*, 300.

[172] Ibid.

[173] Aquinas, *Summa Contra Gentiles Book IV: Salvation*, 306.

through time as they develop and grow, and by basically reaffirming C ≠ ID,[174] comes to the conclusion that whatever is the bearer of identity over time, it must not be material. He says:

> In this way, then, this is not a requirement of man's arising with numerical identity: that he should assume again whatever has been in him during the whole time of his life; but he need assume from that matter only what suffices to complete the quantity due, *and that especially must be resumed which was more perfectly consistent with the form and species of humanity*.[175]

So, according to Swinburne, Aquinas thinks the identity condition for the resurrection will be an essential *part*, as in ὕλη stuff. But is that what Aquinas is saying? If we think of the essential part as a *metaphysical* part, consistent with his understanding of a subsistent-but-not-substance soul, then we may be getting closer to what he intended. As Eberl affirms, "Aquinas asserts that the identity of a resurrected human being is 'made when the same soul is conjoined to the numerically same body'."[176] Then, the observation from Aquinas concerning "radical seed" makes more sense: "Accordingly, if something was in one man as the radical seed from which he was generated, and in another as the superfluity of nourishment, it will rise in him who was generated therefrom *as from seed*."[177]

While Swinburne points out the obvious as far as what we now know about sperm, what he is missing is that Aquinas recognizes something important: the criterion for NID over time will have something to do with whatever is uniquely tied to Paul as his formal cause of generation, in both the beginning of his earthly life and apparently his resurrected one as well. The essential part must be a formal cause. Aquinas's science may be erroneous, but he concluded

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[174] When he says "for the form and species of [the body's] single parts remain continuously through a whole life…Man is not, therefore, numerically different according to his different ages, although not everything which is in him materially in one state is also there in another." Ibid.

[175] Ibid, emphasis mine.

[176] Eberl, "Aquinas on Human Nature," 358.

[177] Aquinas, *Summa Contra Gentiles Book IV: Salvation*, 306, emphasis mine.

much from little available scientific observation. Case in point, Swinburne is wrong. There *is* a modern solution. Concerning Aquinas's "radical seed," we can understand it as the information contained in each individual's DNA. This is related to what Pasnau calls "the brink of the very deepest level of Aquinas's metaphysics."[178] He calls upon Aquinas's remarks in *Quaestiones disputatae de veritate* (*QDV*) 2.7c, "once the proper essence of a singular is cognized, all of its singular accidents are cognized." Pasnau makes one important observation, here: "But from the deepest metaphysical perspective, all of my various properties, necessary and accidental, flow from my own distinctive essence. Hence God, who understands that essence, understands everything about me, past and future."[179] If it is the case that Paul's unique genome in his DNA contains the information of the essence of his material composite, then all of Paul's various properties, necessary and accidental, flow from the distinctive essence contained in the unique sequence of his genome. This information in DNA would be the proper essence of the singular of Paul, would contain all of his singular essential and accidental properties, and would contain how Paul's material composite is *in-formed*, past and future.

It is vital to qualify exactly to what I refer when I say 'DNA': I am referring to the genome, the immaterial information of one's genetic code. Because of the matching relationship between the four nucleotide bases between Adenine and Thymine (A and T) and Guanine and Cytosine (G and C), all of the information of a DNA strand is contained on each side of the double helix. This is not only vital for cell division and replication in every living thing, but it is also crucial for our understanding of how DNA can be the criteria for personal NID over time for the bodily resurrection. Since the completion of the Human Genome Project (HGP), we have had

[178] Pasnau, *Thomas Aquinas on Human Nature*," 168.

[179] Ibid.

the ability to map out the entirety of human DNA,[180] and from that the ability to inexpensively map any individual person's genome.[181] For the purposes of constituting an entire genome, all that is required are the string of base pairs made up of A, T, G, or C, which is all the data of the HGP amounts to. And, because of the way the base pairs are matched, only one half of the pairs are needed in order to have the full genome: a string of letters to signify one side of the double-helix. The full content of a person's unique polymer of nucleotide base pairs (and therefore the blueprint for their particular material composite) is able to be "backed-up" as information, which is by nature immaterial and abstract.

I am not saying "backing up" the data of Paul's DNA is merely possible; we have *done* it. The HGP is one of the most significant scientific breakthroughs in the last 50 years, and its results show that the data of the configurational state of a human composite can be processed, synthesized, and possibly even reconstructed. It is possible with our own technology, to an extent: we could synthesize the nucleotides, build a genome from the information, make cells implanted with the new genome, and then engineer them similar to the process of cloning to make embryos. Given *painstaking* time, we could, right now, take the information of a genome and reconstruct it back into the biological substance of DNA. That is what Aquinas's configured configurer *is* –along with, of course, the miracle of DNA-as-form actualizing the human composite one cell division at a time, from embryo to resurrection. What occurs naturally over a lifetime happens instantly in the bodily resurrection. DNA is the configurational form, or blueprint, of Paul's material body from his first cell all the way to his resurrected body. It is the

[180] See Eric S. Lander, *et al*, "Initial Sequencing and Analysis of the Human Genome," *Nature* 409 (15 Feb 2001), 860-921; and J. Craig Venter, *et al*, "The Sequence of the Human Genome," *Science* 291 (16 Feb 2001), 1301-1351.

[181] See Jeffrey M. Kidd, *et al*, "Mapping and Sequencing of Structural Variation from Eight Human Genomes," *Nature* 453 (1 May 2008), 56-64; and especially David R. Bentley, *et al*, "Accurate Whole Human Genome Sequencing using Reversible Terminator Chemistry," *Nature* 456 (6 Nov 2008), 53-59.

only aspect of Paul that holds unique continuity and remains static over his entire existence. DNA, as configured configurer, can survive death into the resurrection as data (exactly as the HGP has done) in a purely *in-form-ation* bearing state. In this way, DNA perfectly reflects the heart of what it means for Paul to be metaphysically amphibious, given Boethius's definition of a person and Aquinas's definition of *humanae personae*. DNA is both immaterial *in-form-ation* and a material, biological substance –the immaterial is expressed in the material.

Aquinas's language describing the soul is more than friendly to my hypothesis of the immaterial information of DNA as part of the form (the soul) in all living things, particularly human beings: "Therefore, the soul's *esse*, which is of the composite, remains in itself at the dissolution of the body; and, when the body is restored in resurrection, it is returned in the same *esse* that remained in the soul."[182] The form being within the matter, and able to subsist apart from it, is perfectly explained when viewed through the illuminating lens of DNA. Stump gives us another way to look at it: "In virtue of this one form, a human being exists as an actual being, as a material object, as a living thing, as an animal, and as a human being with cognitive capacities."[183] DNA brings the Stump/Aquinas model to life, and shows how the model can work, given what we know about human nature from contemporary science and the proposed 'data backup' analogy. Understood in the sense of the immaterial data of Paul's unique genome, DNA should be considered as configurational *in-form-ation* of the material composite, as Aristotle and Aquinas's 'nutritive soul', and 'backed up' as the data of Stump's 'configured configurer' or the subsistent, disembodied human soul.

In terms of Aquinas's Aristotelian metaphysical background, DNA gives a clearer picture of hylomorphism. For anyone having trouble understanding how a μορφη or εἶδος (form) could

[182] Aquinas, *SCG* IV.81.11, the very last line.

[183] Stump, *Aquinas*, 202, quoting *ST* Ia.76.6.ad1.

be within a thing, DNA should clear that up, if understood as Aristotle's nutritive soul. As Marjorie Grene points out, this can fill the need for a formal cause within contemporary thought, to open doors to a more cohesive metaphysics: "It is, then, precisely the Aristotelian concept of form, or some modern analogue thereof, which is lacking in the modern concept of adaptation, or better, of the organism as a pure aggregate of adaptive mechanisms;' and later, "*Eidos* in this context functions in a number of striking respects in the same way as the concept of organization (or information) in modern biology."[184] Aristotle identifies form as the actualization of the matter, and DNA contains more than just genes for certain traits: it has all of the most specific plans for cell division and differentiation in order to configure the entire body. In other words, it is a cell-by-cell blueprint to in-form the material composite it is encoded to *actualize*. I am saying *that* information is what constitutes Aristotle's 'nutritive soul',[185] and therefore Aquinas's configured configurer for all living material things, including most especially human persons of the genus "rational animal." DNA is the formal cause of the material composite.

When materialized and actualized within the composite, DNA can meet the criteria for all four of Aristotle's causes. Other than formal causation as the configured configurer, it is the material cause of Paul's composite while it is being formed, as each cell physically contains the biological substance of the DNA molecule. The resulting composite of Paul is itself the efficient cause for the nutritive, sensate, and (for humans) rational capacities, and DNA is the efficient cause of the very process of cell division that actualizes each and every cell of the composite.

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[184] Grene, "Aristotle and Modern Biology," 408 and 409, respectively. She even explicitly recognizes my central claim: "The colinearity of the DNA chain is a relatively simple example of such order. The concept of information may also play a similar part. In fact, it is even closer to Aristotelian form." 410-11.

[185] Thus, Aquinas's commentary on Aristotle becomes centrally instructive: "For, besides growth and decay, living things may exhibit sensation and intellectual knowledge and other vital activities. Immaterial substances as proved in the Metaphysics (XII.7, 1072b1ff) have the life of intellect and volition, though they cannot grow and do not take food. But because, in the sphere of things that are born and die*, the plant-soul (the principle of nutrition and growth) marks the point where life begins*, and the soul is here taken as the type of all living things." *Commentary on Aristotle's De Anima*, 73-74 (219), emphasis mine.

Eberl says, "As configured, a human soul is a subsistent being. Furthermore, it has certain specific and individual qualities. By specific qualities, I intend those qualities that are definitive of the nature of any human being, for example, having human DNA, sensory organs, organs such as a heart and lungs, and a cerebral cortex."[186] Though one can just barely miss the significance of DNA,[187] for a modified Stump/Aquinas model, it is the formal cause of it all.

In DNA, Paul's final causation is also satisfied, by carrying out the teleological process toward his final blueprint –which is fully realized in his bodily resurrection. DNA is not just the configurational form, but the *teleological* form of Paul's physical body, and his bodily resurrection is his τελος. Grene sees this sort of τελος as a Judeo-Christian imposition upon Aristotle,[188] one to which we can fully admit Aquinas is guilty as charged. However, she admits:

> A goal, even if it is an Aristotelian *telos*, not a conscious purpose, must be the endpoint of some *entity's* becoming. Whose achievement is evolution? Whose goal, on an evolutionary scale, is thought?....The concept of *telos* is intelligible and useful, I submit, only with reference to something already in existence.[189]

Since DNA in our conception is primarily *form*, it marries μορφη and τελος, in the exact way Aristotle himself suggested.[190] How? If human τελος is the bodily resurrected person, then Paul in his glorified state is perfected to serve the purpose for which God designed him. If DNA

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[186] Eberl, "Aquinas on the Nature of Human Beings," 344.

[187] Ibid, 344, in footnote 43 below, Eberl says "I am not asserting that a human soul has these qualities in itself; rather, a human soul has these qualities by its capacity to actualize a material body to have them." But DNA, here, undeniably carries the formal capacity to actualize all of the other qualities that he describes

[188] Grene, "Aristotle and Modern Biology," 398, where she states almost *too* forcefully: "There is absolutely no question of any kind of 'purpose' here, either man's or God's. To suppose otherwise is to introduce a Juadaeo-Christian confusion of which Aristotle must be entirely acquitted."

[189] Ibid, 405.

[190] In *Generation of Animals* I.1 (715a 4-5), Loeb pp. 2-3, he says, "As we know, there are four basic Causes: (1) "that for the sake of which" the thing exists, considered as its "End"; (2) the logos of the thing's essence *(really these first two should be taken as being almost one and the same*)." Also, as quoted above in my chapter two, Aristotle says in *Metaphysics* VIII.4-6 (1044a 32- 1044b2), Loeb pp. 418-19, "…what is the material cause of a man? The menses. What is the moving cause? The semen. What is the formal cause? The essence. What is the final cause? The end. (*But perhaps both the latter are the same*.)"

contains the *in-form-ation* necessary for that teleological vision to be carried out, and in the disembodied state, it is 'backed up' as εἶδος, then μορφη/εἶδος and τελος *are* almost the same thing, and we can therefore make better sense of Aristotle's inference (footnote 190, above).

There still looms the crucial question of how to resolve 'μορφη schmorphe', since DNA is obviously the μορφη aspect of the soul, but not the νους. How can the μορφη and νους be properly split and yet still be of the same unitative form of Paul? Furthermore, there is a problem of duplication as it relates to the information-bearing pattern or "data backup" analogy.[191] Even if Paul's DNA can be copied (and make the type/token distinction irrelevant), you would, at best, have a *clone* of Paul, mental states intact, without preserving NID. Right? [192] Fortunately, there are many examples of perfect human genetic clones existing in our world, approximately ten million, in fact. They are called identical (or monozygotic) twins. Unfortunately, they pose a potential problem for DNA as the sole vehicle for NID over time: how can we distinguish essential and accidental properties of NID without it being merely by convention? As a result, we still need a criterion of NID, alongside DNA, that can handle both static *and* dynamic (essential *and* accidental) properties for the bodily resurrection.

**II. Duplication: Monozygotic Twins and Seele-νους**

Paul's NID cannot be merely his DNA or configured configurer. Here is why: imagine Paul has a monozygotic (MZ) twin. Let us call Paul's twin brother 'Raul'. Paul and Raul, as MZ twins, have 100% identical DNA –they are awesome wonders of God's creation. Identical twins

[191] Baker, "Persons and the Metaphysics of Resurrection," 344. She notes, "To avoid this problem, defenders of the memory criterion and the like usually add the (ad hoc) requirement that there be no duplication."

[192] Really, no. Consider what a clone is, metaphysically. The resulting resurrected person would not be a clone, because *by definition* a clone co-exists with the original, as in a Doppelganger. In the resurrection, with DNA as the criteria for personal NID, there would only be one Paul. Of whom would this Paul be a clone? Of his old self? As far as we can tell, his old self was planted as that bare kernel from I Corinthians 15:37. The old Paul is not there to be cloned –he's standing proud with his glorified body. Such would be the case for any resurrection body.

pose a serious problem to DNA being the only immaterial information to count for the soul. When Paul and Raul are bodily resurrected, there is a possibility they will be exactly physically identical. If they do indeed have the exact same DNA, and no constraining nature/nurture obstacles from this world when we will all be changed in an instant, then it is possible they would look exactly the same. A materialist would argue that what individuates Paul and Raul is their unique material configuration, including possibly the configuration of the atoms forming their brains to give them their respective mental contents. But, given Plantinga's observation that material neural connections are not alone sufficient for beliefs or thoughts, and you need to assign order to any information for it to make sense (similar to the way our brain assign order to written words, which are nothing apart from that process),[193] the materialist is left only to appeal to immaterial mind to individuate Paul from Raul.

Here is how that works. What could be said of mental contents can be said about the 'data backup', and it might help to sort out Paul and Raul. Computer data, like DNA or mental contents, is information all by itself: it is a series of zeroes and ones. But that is indecipherable from, and so also not identical to, what it actually is written to do, ergo D ≠ ID. Data only meets the conditions of its τελος when it is read properly, through computer hardware. But even the hardware needs to decipher via a programming language, among other things, to assign order to the data. Apart from this potentially being an interesting analogical teleological argument for God's existence, it means there is something immaterial going on to order the data make it what it is. The hardware alone is not sufficient to do that. So, for the twins, whatever individuates between physically indistinguishable Paul and Raul must be more than their DNA. And, given C ≠ ID and D ≠ ID, it must also be more than their physical bodies or brains. We are only left with

[193] See Plantinga, "Against Materialism," 15ff, and "Materialism and Christian Belief," 112-13.

immaterial mental contents, which I will call, for the sake of this thesis only, Seele-νους.[194] It is the only thing completely individuating Paul from his twin brother Raul. Paul's teleological *in-form-ation*, then, as DNA and Seele-νους is sufficient for and not incompatible with the problem of psychological continuity as NID over time. If MZ twins have identical DNA, and need Seele-νους for individuation, then the same would apply for all human persons. This is consistent with the Stump/Aquinas model: "Aquinas rejects the view that the soul is *only* a configurational state on the grounds that if the soul were only something such as a harmony, it could not exist on its own, and so 'it would be only a form similar to other material forms.'"[195]

DNA and Seele-νους are a package deal for NID and for the resurrection. DNA is the formal cause of the "hardware" necessary for Seele-νους to function in and through the body, as teleologically designed. Even for Aquinas himself, DNA alone is insufficient. Stump makes it clear that, "At death, the soul is replaced with a different, non-animating substantial form. The matter of the body is then configured in a substantially different way and so has a form different from the one it had before death."[196] If Paul's soul was merely his DNA, then it leads to absurdities. Obviously, even the biological structure of DNA survives death, certainly immediately after death. Since there is no observable change in the DNA upon death, the change in the substantial form of the human person must come via the intellective aspect: the Seele-νους. Again, I do not mean to suggest there are two souls, DNA and Seele-νους, or even that the two parts of the unified soul are so clearly distinct. In the same way the intellective soul of the human

[194] My novel term for 'mental contents', Seele-νους, is a combination of the German term for soul/psyche which is notoriously difficult to translate and therefore perfectly fits my needs, and also the Greek word for 'mind' or 'intellect'. This is because whatever individuates Paul from Raul, and therefore all persons from other persons, is more than just bare knowledge and intellect of νους, but also character, personality, emotive and psychological traits, will, and anything else judged by God in the general resurrection, which is perfectly wrapped up in 'Seele'.

[195] Stump, *Aquinas*, 211.

[196] Stump, "Non-Cartesian," 509.

person, as genus "rational animal" is an amalgam of nutritive, sensitive, and rational soul, so too the immaterial information of DNA and Seele-νους is a constituent part of the whole soul. This reinforces DNA as what Aristotle and Aquinas term the nutritive soul. Plants have it, but obviously plants and animals lack Seele-νους, insofar as they lack rationality unique to humans as rational animals. This also reinforces Aquinas in *SCG* II.76, where he says the agent intellect is "part" of the soul. It affirms what he says in *SCG* II.61.3, "And afterwards in the same chapter, Aristotle remarks that 'certain parts of the soul are separable.' But these are no other than intellective parts. Hence, it remains that these parts are acts of the body." DNA and Seele-νους is the μορφη/νους "split" of the soul that Pasnau speaks of,[197] without separating the agent intellect from the soul –it must be a subsisting part of Paul and Raul's NID into the resurrection. This means Seele-νους is a dynamic/accidental criterion for NID. It is anchored to static/essential DNA, so we can still have continuing NID over time. This means both Merricks *and* Baker are answered: NID is not a brute fact, and the duplication problem for an information-bearing or "memory criterion" model can be avoided.

**III. Blueprints, Manuscripts, and Mutations: Objections to DNA**

It should be fairly obvious, then, how the DNA modification handles 'μορφη schmorphe'. DNA serves as the μορφη part, and the νους part is likewise the immaterial 'data backup' of what was dependent upon, but not identical to, the brain while embodied. But what about blueprints? Corcoran argues against counting DNA as the *sole* criteria for personhood, specifically as "all the directions for how the embryo will subsequently develop."[198] He says, "it is a mistake to reduce personhood to information, which is precisely what a strand of DNA

[197] Pasnau, "Thomas Aquinas on Human Nature," 162-3.

[198] Kevin Corcoran, *Rethinking Human Nature*, 108-109.

contains."[199] Here, it becomes apparent he is describing the sort of inference entailing a person is identical with their DNA and nothing else –a far cry from the role of DNA as the configured configurer within a composite as described by Stump/Aquinas. Corcoran even makes a small argument *for* a composite, "Moreover, it is worth noting that a strand of DNA itself possesses no potentialities. An organism (or cell), however, may possess various potentialities in virtue of its DNA…In the right environment (a cell or organism), it instructs the cell or organism to carry out particular functions (e.g. to make certain proteins)."[200]

Corcoran is right to reject reducing Paul's personal NID to the DNA molecule, but it is also problematic to disregard it entirely from the equation. As stated above, because DNA is unique to each person, and is intimately involved in the process of forming the body, and could survive death as information, it should not be so quickly overlooked. Corcoran goes on to say "no single organism, let alone a person, exists in the womb just after conception,"[201] but this seems misguided. There are of course a very great number of single or few-celled organisms in the world, and Corcoran himself states an organism *or cell* could "possess various potentialities in virtue of its DNA," among which, for a fertilized human embryo, no matter how few cells it is comprised of, would be the form of human personhood.[202] While an embryo with a full genome can claim that status, it would seem illogical, then, to count sperm and eggs as persons under the same criteria (which Corcoran suggests should follow as a result of any DNA argument). But the

[199] Ibid, 108.

[200] Ibid, 109.

[201] Ibid.

[202] Christina van Dyke makes the point excellently: On Aquinas's view, souls are not ontologically prior to the composite: "for the individual rational soul begins to exist only when the composite comes into being. God infuses the substantial form 'human being' into an already-existing fetal body, at which point both the individual rational soul and the particular human body come into existence. Thus, both parts of the matter-form composite being to exist at the very moment that the composite substance itself begins to exist." "Not Properly a Person," 196. As DNA and the human composite are inseparable, the conception is complete when we put these two pieces together.

latent potentiality of a gamete is not the same sort of potentiality in an actually-dividing group of cells with a completed, unique genetic code. Again, this points to the necessity of the composite: Paul's cells, being from a fully grown adult human, could similarly divide with the exact same DNA he had when he was a fetus. A sperm cell without a full human genome, however, can never by itself divide and grow to be Paul.

So, Corcoran's line of reasoning is in doubt, here. To say a 'blueprint' is not a thing is an oversimplification. DNA is an active, teleological blueprint. A blueprint is mere latent information. DNA is active *in-form-ation*. It carries within it formal causality in a way a blueprint or plan does not. When embodied in an embryo, DNA is simultaneously expressing formal, material, and efficient causality during cell division. That the teleological plan for this individual human being is contained within the information of one cell is one thing: but that it is an active *process*, kick-started, should certainly count for something.[203] Finally, Corcoran could actually get an answer he seeks: DNA, in the sense of the configured configurer described above, clearly resolves the ambiguity he points out in his version of the objection. Combined with the 'data backup' analogy and the admission, above, that a psychological component is necessary (in Seele-νους), Stump/Aquinas can provide Thomistic disembodied state that makes sense.

Van Inwagen, we recall, has this version of 'μορφη schmorphe', "wouldn't the union of my body and the form of my body, whatever the form of my body may be, be simply my body? And isn't my body, without qualification, a material substance?"[204] While in a certain way the union of body and soul is simply the body, it is more proper to view it as a union of matter and form: the form (as DNA) is not *the* body, but is *in* the body. In fact, Aquinas *says* the "soul is in

[203] To see how this is better expressed in terms of the biomedical ethical pitfalls of human embryology, see Jason T. Eberl, "Aquinas's Account of Human Embryogenesis and Recent Interpretations," *Journal of Medicine and Philosophy*, Vol. 30 (2005): 379-394.

[204] van Inwagen, "A Materialist Ontology of the Human Person," 204.

each part of the body,"[205] and DNA makes this clear. If DNA is understood as the configured configurer, then it turns out van Inwagen's intuition, *and* Stump/Aquinas, are both correct –a true win-win. In invoking 'DNA', I am again not implying the biological structure, but the immaterial *in-form-ation* of a genome. It is possible, for example, to download the original genome sequence from the HGP and store it on a very large computer hard drive. It is therefore possible to have Paul's entire human genome printed on a sheet of paper (granted, the paper will be thousands of miles long, but this fact still obtains). It is also possible, then, for that information to exist abstractly, as pure information, as backed up data, as εἶδος.

But what about manuscripts? It would *seem* we have landed right in the middle of van Inwagen's famous thought-experiment in "The Possibility of Resurrection,"[206] centered on the token/type distinction: an Augustinian autograph manuscript held by monks in AD 457 is destroyed by fire. An 'Aristotelian'[207] among the monks claims the manuscript was miraculously rematerialized by God in AD 458 and is numerically identical to the original. But of course it is qualitatively distinct even if the information, and even the appearance, is exactly the same.[208] Van Inwagen's point: not even *God* could reassemble a material object and have it be numerically the same, and so the resurrection should be understood in the same way. What makes this manuscript objection so interesting for *us* is, given DNA/in-form-ation, a person could even be said to *be* a manuscript: the line between analogy and reality is blurred.

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[205] Aquinas, *ST* Ia.76.a8.

[206] Peter van Inwagen, "The Possibility of Resurrection," in *Oxford Readings in Philosophical Theology Volume II: Providence, Scripture, and Resurrection*. (Oxford: Oxford University Press, 2009): 321-327. The argument is cited by van Dyke, "Human Identity…" 383, and Baker, "Need a Christian Be a Mind/Body Dualist?" 499, and in a different form in Stump, "Resurrection, Reassembly…" 151-2.

[207] Although one should wonder: if this monk is indicative of the 'Aristotelian' point of view and holds to the necessity of reassembly of parts for NID, does that make the driving point of this thesis somehow 'non-Aristotelian'? Yes and no, as we can recall Swinburne's point of how Aquinas radically alters Aristotle's metaphysics to come to his position, *Personal Identity*, 32.

[208] Van Inwagen quips, "(Strictly speaking, it is not even a *manuscript*.)" Ibid, 322.

For Aquinas, of course, we do not need reassembly of parts, since he already notes we lose/gain cells here on earth and retain our numerical identity there, i.e. C ≠ ID, and he rejects reassembly in *SCG* IV.81.12-13, noted above. Regardless of where the matter comes from, even if Paul was never composed of it during his life– it can compose his body due to it being informed or configured by his substantial form, or μορφη, or soul.[209] If Paul does not need reassembly here on earth to retain his personal NID, then he does not need it for continuity into the resurrection, either. This is van Inwagen's point, and also Aquinas's. But, Paul *does* need his substantial form that in-forms his resurrection body to be consistent. Which is the configured configurer, which is DNA. Stump/Aquinas, modified with DNA, can give us that kind of consistent, subsistent, substantial form of Paul.

One could further press, along the lines of the manuscript objection, that just as there is a difference between photocopying a document, or even having the digital representation –or, perhaps, a 'data backup' of it– so, too, would it be the case for NID and DNA: a copy is not the original. But DNA is different, and this is where the analogy breaks down. Backing up the information of a genome is not about keeping the autograph original, or even a representation of the original, where font, text placement, and format might matter for a manuscript to even be qualitatively identical to the original. It is the information contained therein which makes or breaks NID for Paul's DNA. Because DNA is able to replicate itself perfectly through cell division over myriad iterations –over a normal lifetime, probably too many to count– what we have in DNA is an autograph copy, over and over again. The information contained in the physical double helix structure is the manuscript *and* the autograph. This is a mechanism the manuscript objection cannot touch: the information is transmitted, encoded, and then put into

[209] Eberl, "Aquinas on the Nature of Human Beings," 359; he cites *CT* 154 and Stump, "Non-Cartesian," 517.

action to replicate and make new cells, accurate well over 99.999% of the time. This is a fact for DNA, or our bodies, and all living things, would not function.

If we must admit an informational 'data backup' of the genome is not numerically the same as the data of the original biological structure, and therefore insufficient for NID criteria for the bodily resurrection, then we must also admit *every copy* of *every cell* guided by the process of DNA replication is numerically different than the original DNA. Of course, the cells and even the actual material copies of the nucleotide bases will be numerically distinct from each other, but that is not what is at stake. This 'copy' objection (note: not van Inwagen's original, autograph objection) rests on whether the *esse* of the document/information (the type) is sufficient for NID, rather than the token thing itself –the actual AD 457 autograph manuscript in Augustine's hand. If the NID of Paul's DNA rests on being a token and not a type, then cell replication creating an exact copy of the *information* would be worthless. However, because of C ≠ ID, the replication of qualitatively distinct cells is sufficient to continue the existence of Paul's NID over time. In each cell the DNA structure itself would, of course, be numerically distinct. But, the same could not be said of the exact same code if it existed as 'backed up' immaterial information. It would be metaphysically simple, no others would be like it, and it would be pure εἶδος. Therefore, no qualitative distinctions could count against Paul's 'backed up' DNA for NID over time. This also means DNA during replication, while actively in-forming the composite, is uniquely both type *and* token. So, van Inwagen's manuscript objection, and the 'copy' objection, both fail to set flames to DNA as the criteria for NID over time. We can affirm I Corinthians 15 v.37 and v.42 right along with van Inwagen;[210] the remnant preserved for Paul, the γυμνος κόκκος (bare kernel) will be sown perishable and raised imperishable –and it is Paul's unique genome, the information of his DNA. DNA as the vehicle for human teleological in-form-ation

[210] van Inwagen, "The Possibility of Resurrection," 327.

can transcend the manuscript or token/type problem: the copies are identical to the originals exceedingly better than 99.999% of the time, from first cell to final state, from fertilization to glorification. From zygote to Zion.

But what about mutations? Or cancer? Or other damage to DNA in cells from conditions in the environment? What about genetic disorders like Cystic Fibrosis, or Sickle Cell disease, or even color blindness? What about conditions like DiGeorge syndrome (a deletion of a small piece of chromosome 22), Down syndrome (the presence of all or part of an extra chromosome 21), Turner syndrome (an only-X sex chromosome karotype), or Klinefelter's syndrome (XXY sex karotype) –disorders where there is a clear malformation of the genotype, and even the number and structure of *chromosomes*, all of which come with serious phenotypical results? Could we say, for example, based on what has been said so far, that people with these disorders are even essentially *human*? Let us say Paul has Down syndrome. Could there be an ideal form of Paul's genome awaiting him in the bodily resurrection that would still bear his NID? What sort of problems does this pose for divine teleology?

At least in regards to mutations, DNA can be measured according to its original structure. The very idea of a 'mutation' infers a perfect original *somewhere*. If Paul had a melanoma, it is quite likely that somewhere in his body there still exists at least one cell with the same genome with which he was born. If we did a full-body scan to determine the genetic code in every cell of Paul's body, the vast majority of those cells will have identical DNA. If it were the case that everyday activities and mutations damage our DNA irreparably for the purposes of NID into the resurrection, then: 1) cells in the body could not repair their own DNA without possibly changing the very identity of the person, but cells routinely repair errors and small mutations, and 2) the human genome could not have been sequenced, which it was, and will continue to be

even for individual persons in the future. It is seldom the case every single individual cell of the body has damaged or mutated DNA, so mutations and damages should not be a concern.

Seldom the case, that is: save for the previously mentioned, among many other, genetic disorders. But perhaps this isn't such a damaging objection. Let us say Paul has Cystic Fibrosis (CF) and he commits a heinous crime: he knifes someone to death.[211] Paul is also a clumsy criminal and cuts himself with his own knife in the act, and so leaves many traces of his DNA behind in the form of his own blood. Luckily for Paul, the police are somewhat slow, and it takes them a long while to catch up to him –enough time for Paul to have partaken in a recently developed, total, and miraculous genetic cure of his CF. The police take Paul into custody, and take a blood or hair sample to verify his DNA matches the DNA found in the blood at the crime scene. Would they still be able to identify Paul genetically as the murderer? Our intuition says yes. In fact, due to the volume of genetic material in the human genome, Paul's DNA would still be much over 99.999% identical with his CF self, even if scientists were able to track all of the many scattered genes related to the disorder. The same could be said even of the more serious karotype-based disorders. If Paul had Down syndrome, he would be identified as Paul without the extra chromosome 21. If Paulina had Turner syndrome, she would still be Paulina, because the other 45 chromosomes are numerically identical in data to the pre-cure Paulina. Since they merely correct corruptions, if cures to genetic diseases do not change the person's genetic structure enough to escape being identified with DNA profiling, then perhaps NID can hold into the resurrection even with slightly more dramatic changes to DNA.

All of the above holds if and only if DNA is static/essential. But if not all of Paul's DNA as originally configured when he was a fetus is essential to Paul, does this mean we pick and choose by convention what parts of the genome are essential and what are accidental to personal

[211] I graciously owe this 'killer' argument to Roger Turner.

NID? Is there a Sorites paradox of DNA?[212] If Paul's CF can be cured, then could Paul change his genes for something mundane (like eye color) and still be Paul? If genetic disorders and diseases are cured in a glorified resurrected body, how is DNA static? How many other so-called 'accidental' properties of Paul can be changed genetically before we could say Paul ceases to be Paul? For our last task, we must try to judiciously determine the essential and accidental properties of Paul, in order to establish individuation and personal NID into the resurrection.

**IV. Phenotypes, Indiscernibility of Identicals, and Individuation**

Stump introduces the helpful distinction that resolves the mess, between substantial and accidental forms.[213] A substantial form configures prime matter, brings about a *hoc aliquid* into existence that was not already in existence, and affects the kind of change that only results in the generation of a thing. A substantial form, according to Aquinas, "presupposes only potentiality to existence, i.e. bare matter."[214] But an *accidental* form configures an already-existing substance (and so is, as Aristotle says, like a predicate to a subject), giving a substance a property without thereby changing its identity. So, Stump concludes, accidental forms are the "non-essential properties of a thing; the addition or removal of an accidental form *does not alter the species* to which the whole belongs or the identity of the whole." [215] This distinction has broad implications for individuation of things, especially human persons. Stump argues:

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[212] The Sorites paradox arises from vague predicates, like the paradox of the heap made famous by Eubulides of Miletus ('Sorites', σωρείτης, meaning "heaped up," comes from the Greek word for heap, 'σωρός'): considering a heap of sand, removing one grain at a time and placing it into a new heap, at what point is the old heap still a heap? At what point is the new heap a heap of sand? This is the crux of the paradox.

[213] Stump, *Aquinas*, 38.

[214] Aquinas, *Commentary on Aristotle's De Anima*, 75 (224)

[215] Stump, *Aquinas*, 38, emphasis mine. Aquinas also says accidental forms "presuppose the subject already in the act of being," and do not make a thing simply exist, but only this or that *mode*, much like quantification. Aquinas, *Commentary on Aristotle's De Anima*, 75 (224)

> According to the medieval metaphysics Aquinas accepts, any composite substance, even an immaterial substance, has accidental forms as well as a substantial form, and accidental forms a thing can gain or lose while remaining one and the same thing. Now on a commonsensical view of change over time, change is a matter of one and the same thing's having a property at one time which it lacks at another time. Medieval metaphysics, including Aquinas's, beings with a commitment to this commonsensical notion of change and then works to provide an explanation of something's remaining numerically one and the same through the change. Contemporary metaphysics, by contrast, begins with a commitment to the law of the indiscernability of identicals:
>
> (LII) For any *x* and *y*, *x* is identical to *y* only if *x* and *y* have all and only the same properties.
>
> On the contemporary commitment to (LII), what needs explaining is change over time, and it is often explained in ways which are complicated, if not counter-intuitive.[216]

Through a few commonsensical moves, Stump analyzes LII, and affirms something more comprehensive, given that for Aquinas, matter is what individuates things: "(AP5) For any substances *x* and *y*, *x* is identical to *y* only if (i) *x* has all and only the species-specific properties that *y* has, and (ii) *x* has the property of being constituted by this matter if and only if *y* has the property of being constituted by this very same matter."[217] Because of C ≠ ID, (ii) obviously does not apply to Paul, or any human persons. Therefore only (i) applies. Since accidental properties (including accidental properties of DNA) are not species-specific (see directly above), instead of Stump/Aquinas having a Sorites problem with DNA, it is actually contemporary metaphysicians who accept LII that cannot deal well with accidental properties. The best example: if (LII) were rigidly held for every property of Paul's DNA, then the police (if they were wise on their analytic philosophy) would be forced to let him go if his CF were cured; he would not be identical to his former self! Stump offers AP5 to show how personal NID can

[216] Stump, *Aquinas*, 44-5.

[217] Ibid, 50. (AP5) is built upon the more modest (AP4): "For any substances *x* and *y*, *x* is identical to *y* if and only if the substantial form of *x* is identical to the substantial form of *y*." Ibid, 46. It is worth reading over Stump's argument on 44-50, as it cannot be stated clearer, or in more detail. I defer to Stump to back up my points, here.

survive amid changes from accidental properties. If this more robust understanding of identity holds, then Stump/Aquinas has no Sorites problem of DNA, and DNA can be perfected in the bodily resurrection of all kinds of diseases, disorders, and mutations without sacrificing what we have been after all along: continuity of NID over time.[218]

The missing connection lies in the distinction between substantial/accidental forms and the static/dynamic forms in regards to phenotypical differences among genotypes. This is where the modified Stump/Aquinas model gets cutting edge. Besides Seele-νους being a bearer of accidental or dynamic properties, I submit that recent work on understanding the epigenome[219] is instructive in understanding the way Aquinas's concept of 'accidental form' works with the individuation of human persons beside the static or essential nature of DNA. Though defining the epigenome is a contentious thing in genetic science, Adrian Bird proposes a definition which supports a more contemporary usage, "the structural adaptation of chromosomal regions so as to register, signal or perpetuate altered activity states."[220] Epigenetics can at least explain phenotypical distinctions given genotypical similarity: it reflects the environmental effect on gene expression, or the "nurture" side of the nature/nurture debate. It is even the case among MZ twins that there can be epigenetic distinctions,[221] which may help to explain how one twin could be taller than the other, or susceptible to disease in a different way, for example.

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[218] Obviously, it is a bit much to expect a solution to the Sorites paradox, proper –and the above is admittedly a small step into a very contentious debate in contemporary metaphysics. All that is required of the Stump/Aquinas model is to recognize there is a problem, and offer some possibility of its solution, which Stump does successfully.

[219] For more information, see Adrian Bird, "Perceptions of Epigenetics," Nature 447 (24 May 2007), 396-398.

[220] Ibid, 398.

[221] See Mario F. Fraga, *et al*, "Epigenetic Differences Arise During the Lifetime of Monozygotic Twins," *PNAS* Vol. 102, no. 30 (26 Jul 2005), 10604-10609; and Carl E.G. Bruder, *et al*, "Phenotypically Concordant and Discordant Monozygotic Twins Display Different DNA Copy-Number Variation Profiles," *The American Journal of Human Genetics* 82 (March 2008), 763-771.

If we think of the epigenome as the dynamic or accidental form partner to DNA's static or essential/substantial form, then, for one thing, MZ twins *may* look exactly the same in the bodily resurrection. The "nurture" environment being a level playing field, their identical DNA could phenotypically express itself the exact same way, because their epigenomes, and thus accidental properties, could be reset. If *those* accidental properties can change at the resurrection, it is hard to see why cured genetic disorders could not be treated similarly. Thus, as van Dyke points out, when Aquinas says in chapter 7 of *De ente et essentia* that some accidents "come from" the side of matter and others "come from" the side of form,[222] the accidental properties resulting from the dynamic nature of Seele-νους and the epigenome just might fit.

If DNA is the matching static or essential form to these dynamic or accidental aspects, we can uphold Paul's NID into the bodily resurrection, and we can finally make sense of individuation. Aquinas says "the human soul remains in its own *esse* when it is separated from the body, having an aptitude and natural inclination toward union with the body."[223] Aquinas also upholds the distinction Stump makes between substantial and accidental form, and points it toward individuation for the resurrection.[224] Swinburne's caveat about Aquinas being unable to have souls differ in "soul-stuff"[225] also dissolves, since it can be the case that souls, as DNA and Seele-νους, can differ greatly in content, in ways much more nuanced than if the soul were only νους. Ultimately, for Aquinas, designated matter is the primary individuating principle of human persons; it has determinate quantitative dimensions, but there are interminate bounds for that

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[222] van Dyke, "Not Properly a Person," 194, footnote 34.

[223] Aquinas, *ST* Ia.q76.a1.ad6, as quoted by Eberl, "Aquinas on the Nature of Human Beings," 345, where he says, tellingly, that each soul "retains knowledge, experiential memory, and the blueprint for a particular body."

[224] "But lest it be thought that soul is an actuality in the matter of any merely accidental form, [Aristotle] adds that it is a substantial actuality or form. *And since every form has the matter proper to it, the soul must actualize just this special sort of body*." Aquinas, *Commentary on Aristotle's De Anima*, 74 (223).

[225] Swinburne, *The Evolution of the Soul*, 297.

matter.[226] DNA is the formal cause of all of this. For the same metaphysical reason Paul is still Paul whether standing, sitting, running, losing weight, or losing a hand, or getting poison ivy all over his face, or getting 80% covered in second and third degree burns, Paul's accidental properties in his DNA can change and still be Paul in the bodily resurrection. As Aquinas says, "Quantitative dimensions are accidents consequent upon corporeity."[227]

To conclude, DNA as a modification to Stump/Aquinas serves to 1) preserve the continuity of the physical body by preserving its specific, person-unique plan, 2) retain a static/essential aspect of the body in continuity over time, and so partially satisfy what is required from the good parts of Christian materialism, 3) make better sense of the 'configured configurer' of the Stump/Aquinas soul. With Seele-νους, in the midst of the 'data backup' we have 1) something active and conscious; 2) a seat of Paul's identity that is more than a mere instruction set, but is his dynamic/accidental self; and 3) something that satisfies RA from the introduction. But it is ultimately the coupling of DNA and Seele-νους that is most necessary for establishing Paul's complete NID over time. The complete statement of what the soul is under this modified Stump/Aquinas model is both DNA (as genome) and Seele-νους backed-up. Coupling them 1) avoids duplication problems that Baker points out; 2) solves the mind/soul or 'μορφη schmorphe' problem; 3) resolves most of the other similar metaphysical challenges against the model; 4) gives us a vision for each individual's unique divine teleology (both in the DNA and existential senses), which is ultimately and completely expressed in the bodily resurrection.

[226] Eberl, "Aquinas on the Nature of Human Beings," 349.

[227] Aquinas, *ST* Ia.q76. a6.ad2, quoted by Eberl, "Aquinas on the Nature of Human Beings," 349.

# Chapter Five

## Conclusion

To get back to the first 'big question' from the introduction: the modified Stump/Aquinas model is friendly to substance dualism thanks to C ≠ ID and the 'data backup' providing an affirmative answer to Plantinga's question, "Can I exist when my body does not?" The model is compatible with materialism, as intellect is expressed materially while Paul is embodied (so long as D ≠ ID is kept in mind). However, Aristotelian causality is required in order to include DNA in any model of personal NID over time for the bodily resurrection. For, if DNA is the criteria for NID, dualists and materialists need formal causation (μορφη). Before they can have μορφη, they need Aristotle's metaphysical causation –but Aristotle did not hold to a bodily resurrection. So, if they want an account of the bodily resurrection and Aristotle as the prerequisite for μορφη and therefore DNA, they need the Stump/Aquinas model, or at least parts of it. This means both dualists and materialists, to solve the problem of continuity of NID over time into the resurrection, need to shift around a few ontological categories.

If materialists like Nancey Murphy were to attempt to include DNA without Stump/Aquinas, they would need to accommodate immaterial information as a criterion for NID. The requirement is that some immaterial piece of the human person survives death- if a materialist admits to that at all, they are immediately some form of dualist or another, and would thus no longer be materialists. If substance dualists like Richard Swinburne were to attempt to include DNA without Stump/Aquinas, they would need to radically alter their metaphysical

foundations. Swinburne expertly points out the difference between the way Cartesian dualism modifies, or abandons, Aristotle and formal causation, as well as the way Aquinas heavily modifies Aristotle. Swinburne suggests substance dualism is the simpler and therefore more tenable position. But in order to retain the concept of the hylomorphic relation between form/soul and matter/body (in order to have DNA as a configurational teleological, *in-form-ational* form), the substance dualists would need to regain the Aristotelian metaphysical causality they threw out in favor of the Cartesian one. If substance dualists were to accept that much of Aristotle, then how could we say such a system would be appreciably different from the Stump/Aquinas model? It seems Derek Jefferys was spot-on:

> Despite what many contemporary thinkers want to believe, post-modernity and the rise of modern science have not eliminated the necessity of thinking carefully about causality. We cannot evade perennial philosophical questions by alleging that they arise only in a particular categorical framework. Anytime we think critically about experience, we will have to give some account of the nature of causality.[228]

The ultimate importance of this investigation lies in the hope that a mediating view like the Stump/Aquinas model can "trickle down" from academia to the Christian community at-large. This would foster more informed and fruitful discussion of the bodily resurrection and the many theological and ethical issues surrounding it. Thinking through the mind-body problem helps to make clear the possible virtues and vices that scientific understanding can offer to theological understanding. With hope, the philosophical insights can make a more robust awareness of any hermeneutical biases present in the interpretation of Biblical texts relevant to the issue of personhood. An informed, balanced position between dualism and materialism, such as the Stump/Aquinas model, would also help to solve the painfully apparent conflict between Christian philosophers, both dualist and materialist, to seek unity on such an important issue.

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[228] Jefferys, "A Counter-response to Nancey Murphy on Non-reductive Physicalism," 87.

There are some lingering questions, if the Stump/Aquinas model is to satisfy both dualists and materialists. The implications for determinism from this modified Stump/Aquinas model should not go ignored. It would be too long of a discussion to address those implications, here. But if it is the case, as Psalm 139:13 says, that God himself knits us together in the womb, and if God directly brings together Paul's unique DNA, then God creates people with genetic diseases and disorders all for His glory (such as in the case of the man born blind in John 9:1-3) –or else God cosmically says "whoops" and must react to something seemingly outside of his purview or control, something that cannot be said to be within the realm of interfering with agent causation (namely joining a particular egg to a particular sperm). That certainly does not seem to be a free-willed choice any of us could make; even with in vitro fertilization, there is no telling what sort of genome would result from the chosen gametes. Stump/Aquinas also forces us to ask the same deterministic question of the teleological processes by which we become who we are existentially via Seele-νους. One possibility, as a rejoinder to "time-slice" or memory criteria conceptions of personal identity, is to say our *real* identity is not fully realized until we are glorified in the resurrection, and so during this life we can only be said to be "becoming," and then sent either to reward or punishment –truly a profound statement of teleology of persons. Ultimately, though God may not determine every step of man, under the possible existential-teleological implications of Stump/Aquinas, Proverbs 16:9 certainly comes to mind: "The heart of man plans his way, but the Lord establishes his steps."

There are other outlying implications obviously not addressed, but germane to the discussion due to the implications of DNA as a criteria for continuity over time: issues of Jesus Christ's unique human personhood; many more questions concerning the intermediate state; the possibility of the arcane theological view of traducianism, whereby the soul is said to be directly

inherited from the parents.[229] There are the obvious bioethical implications, including one briefly touched upon in chapter four: given DNA as active, formally and efficiently causing the material composite during cell division, there is ensoulment (and thus human life and personhood) starting directly at conception. This is possibly the most compelling reason to make an effort to include DNA into any model of philosophical-theological anthropology –other than to show DNA and science are not threats to Christian thought or to the soul (but are in fact essential to them). All of these implications, and many more unaddressed, are all excellent points of discussion that should follow from the issues raised, here.

What about attributing causal powers to the soul?[230] Dualists hold the soul reflects, deliberates, remembers, judges, and has intentions. They hold the soul *moves* the person, filling up an insufficient condition for action, up to sufficiency. In short, souls *do* something. They have a principle of activity and movement within them. But if the soul were strictly information, then how is it that information has causal power?

Under this modified Stump/Aquinas model, information has causal powers only when placed in the proper context. DNA is just the configurational and teleological plan of the material composite. As the 'data backup' analogy shows, the code of a program by itself can do nothing. It needs the proper devices to output in order to function as intended. The data is still there when the computer is off, or even if you were to remove the media from the drive or reader, and even further if you were to place it within another computer. But its functionality is fully realized when applied appropriately. The same goes with the immaterial information of personhood and

[229] Swinburne addresses traducianism very briefly in *The Evolution of the* Soul, 179 and 199. Aquinas, too, addresses it in *SCG* II.86-89 and *ST* 76. It seems, given DNA and Seele-νους, that there is a possibility for some sort of hybrid view between traducianism and creationism for this modified Stump/Aquinas model –something to which an entirely separate thesis could be devoted.

[230] I thank Dr. Ed Martin for these observations.

the physical body. The Stump/Aquinas soul *does* have causal powers, they are just kept distinct from the soul.[231] Eberl puts it this way:

> I am being composed of an organic body that is suitably organized to support my activities of living, sensing, moving, and thinking. Most of my activities are wholly realized within the organic structure of my body, for example, moving, breathing, and seeing. My conscious mental functions, however, are not wholly realized within my cerebral cortex; nevertheless, the functioning of my cerebral cortex supports them.[232]

As DNA, the soul has formal causation in configuring the material composite, including the brain, into the individuated person that Paul is. Formal causation blurs right into final causation, and understood teleologically, this soul definitely does something. Likewise, the Seele-νους has causal powers, just not alone: a brain and central nervous system is required, but because of D ≠ ID, Seele-νους is not contingent upon the brain for existence. While embodied, Seele-νους is an emergent property of the brain, and can be referred to as 'soul' with no harm done. While disembodied or 'backed up', Seele-νους is sustained in existence and kept conscious and ontologically distinct by God's supernatural act. The soul's cause of the body is formal, but efficient causation is in the composite. Causal connections are kept intact, and under the modified Stump/Aquinas model, especially as DNA/configured configurer, the soul does a lot.

The second 'big question' from the introduction seems to be the more important one: "Does the Stump/Aquinas model overcome the many metaphysical challenges surrounding numerical identity and the bodily resurrection?" I hope, over the course of the previous three chapters, in the midst of all of the objections and caveats and possibilities, I have shown the answer to this question to be a satisfactory "yes."

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[231] Pasnau lays out the intricacies for that move, *Thomas Aquinas on Human Nature*, 162-3. This is also why over half of Aristotle's *De Anima*, much of Aquinas's treatise in *ST* Ia.75-89, and even a large portion of Swinburne's *The Evolution of the Soul* is about the soul's causal powers: but I hardly have the space to address it.

[232] Eberl, "Aquinas on the Nature of Human Beings," 362.

In order to better summarize, it seems appropriate to end by witnessing Paul's death and resurrection, as understood by the modified Stump/Aquinas model. Let us say poor Paul has just suffered cardiac arrest. His heart has stopped, and soon (if not right away) we could declare him to be clinically dead. The material composite of Paul is no longer animated,[233] and yet he has not ceased to be (he is not an ex-*humanae personae*). Upon his death, his material body is in-formed by a different substantial form, now: DNA no longer being active, and Seele-νους no longer being efficiently caused by the brain, the dead body that was once the composite of Paul is no longer a human person. Paul's DNA and Seele-νους, however, has been immaterially 'backed-up'. Because of RA, C ≠ ID, and the ramifications they have upon the Stump/Aquinas intermediate sate, Paul exists when his body does not. To ask certain interrogative questions of Paul's soul (where, when) is akin to asking the same questions of an idea, or εἶδος, and it won't make any sense. We can, however, ask certain others (who, what, why). Paul is still Paul in this state, because of the Seele-νους being backed up (possible because of RA and D ≠ ID). Paul is still a person ("an individual substance with a rational nature" according to Boethius), although he is not a complete human person, and so is in a deficient state of existence. But, Paul's

[233] Regarding whether the soul is responsible for literal movement and animation of the body as a dualist would say, a quick thought experiment: When Paul's heart stops, there are at least three options at our disposal to try and bring Paul back: CPR, and if CPR works, a portable defibrillator to steady his heart rate, or (if available) a syringe of adrenaline to be dramatically injected directly into his heart. Let us assume CPR successfully restarts Paul's heart. Here is the big question: what changed about Paul? Is he somehow different substantially, and if so, in what sense? Does this act of reanimation (in the sense described above) have something to do with the soul? It seems on to have everything to do with the body, whether by forcing oxygen through the circulatory system via the heart and lungs, or jolting electricity through his body. We can, if we want, struggle with the dualist to explain how the soul superintends this phenomenon. But the result, that CPR must somehow literally *infuse* the soul back into the body so it can be reanimated, is absurd. Does the Stump/Aquinas model do better? If different causal connections and body systems are properties of the material composite, but are still caused (at least formally) by the soul, we can agree with Aquinas that animation, akin to sense perception, is likewise a property of the material composite, or Paul proper, and also of his soul in a restricted sense. The chain of causality from DNA as the configuring formal cause to the processes below seems to be a better option than what the substance dualist is forced to say. But DNA is the direct efficient cause of cell division and making specified cell types, which causes organs to be formed, which causes bodily systems, and in effect causes all of the properties (neural, sensitive, nutritive, etc) of the material composite. So, under Stump/Aquinas, does the soul cause animation of the composite? Yes: formally, and efficiently via indirect causal chains. We can say the soul (truly, the anima) causes animation of the body, but we are still able to say the defibrillator's electricity to the heart, or the motion of one's fist into the chest of a flatlined Paul, brings about the efficient cause of his body's animation and motion: be it electricity, or the breath of life.

existence (both in the purely factual sense and in the existential sense) is upheld by God's supernatural action –for the very purpose of providing continuity of Paul's personal numerical identity over time into the bodily resurrection.

The real "why" of all of this, though, is Paul's complete expression, divinely designed, in the resurrection. Paul's DNA (as immaterial data, his backed-up genome) in-forms the new cells of his resurrection body, in a way similar to how it in-formed his very first cell as a zygote. It could be the case that all of the cells are reconstituted at the same time –as it is by no means necessary for Paul's body to be brought about cell-by-cell in this way. Paul's body will be perfect, in a few senses. It will be in the best possible condition it could be. It will be, as Paul says in I Corinthians 15, "imperishable" or "incorruptible." Paul's as his Seele-νους, which throughout the process of being backed-up was conscious (whether it was instantaneous or if he experienced a passage of time) is now properly an emergent property of his material resurrected body; his brain is the efficient cause of his Seele-νους, once again. Paul, in this resurrected state, is exactly what God created him to be. The limits of imagination cannot begin to describe how great and awesome the experience is. The limits of philosophical and theological speculation cannot begin to touch the implications for what this all means for Paul's existential self in the Seele-νους –although that is admittedly the most interesting question to ask, perhaps for another research project. But, certainly, Paul is embodied, and his numerical identity continues over time. He is resurrected.

**Bibliography**

Aquinas, Thomas. *Commentary on Aristotle's De Anima.* Translated by Kenelm Foster and Silvester Humphries. Notre Dame, IN: Dumb Ox Books, 1994.

_____. *Commentary on Aristotle's Metaphysics.* Translated by John P. Rowan. Notre Dame, IN: Dumb Ox Books, 1995.

_____. *Summa Contra Gentiles Book Two: Creation.* Translated by James F. Anderson. Notre Dame, IN: University of Notre Dame Press, 1975.

_____. *Summa Contra Gentiles Book Four: Salvation*, Translated by Charles J. O'Neil Notre Dame, IN: University of Notre Dame Press, 1975.

_____. *Summa Theologica.* Translated by Fathers of the English Dominican Province. Revised Ed., 1920: http://www.op.org/summa/letter/summa.pdf

Aristotle. *Vol. XIII Generation of Animals*. Trans. A.L. Peck. In Loeb Classical Library, Edited by G.P. Goold. Cambridge, MA: Harvard University Press, 1979.

_____. *Vol. XVII: Metaphysics I-IX*. Trans, Hugh Tredennick. In Loeb Classical Library, Edited by G.P. Goold. Cambridge, MA: Harvard University Press, 1980.

_____. *Vol. VIII: On the Soul, Parava Naturalia, On Breath*. Trans. W.S. Hett. In Loeb Classical Library, Edited by G.P. Goold. Cambridge, MA: Harvard University Press, 1975.

_____. *Vol. IV: Physics Bks. I-IV*. Trans. Philip H. Wicksteed and Francis M, Cornford. In Loeb Classical Library, Edited by G.P. Goold. Cambridge, MA: Harvard University Press, 1980.

Baker, Lynne Rudder. "Need a Christian Be a Mind/Body Dualist?" *Faith and Philosophy* 12, no. 4 (Oct 1995), 488-504.

_____. *Persons and Bodies: A Constitution View*. Cambridge: Cambridge University Press, 2000.

_____. "Persons and the Metaphysics of Resurrection." *Religious Studies* 43, no. 3 (2007): 333-348.

_____. "Why Constitution is Not Identity." *The Journal of Philosophy*, Vol. 94, no. 12 (Dec. 1997), 599-621.

Bentley, David R., *et al*, "Accurate Whole Human Genome Sequencing using Reversible Terminator Chemistry," *Nature* 456 (6 Nov 2008), 53-59.

Bird, Adrian, "Perceptions of Epigenetics," *Nature* 447 (24 May 2007), 396-398.

Bruder, Carl E.G., *et al*, "Phenotypically Concordant and Discordant Monozygotic Twins Display Different DNA Copy-Number Variation Profiles," *The American Journal of Human Genetics* 82 (March 2008), 763-771.

Corcoran, Kevin. "A New Way to Be Human," *Books and Culture: A Christian Review*, (Nov/Dec 2006), http://www.christianitytoday.com/bc/2006/006/16.33.html

_____. *Rethinking Human Nature: A Christian Materialist Alternative to the Soul.* Grand Rapids: Baker Academic, 2006.

Damasio, Antonio R. *Descartes' Error: Emotion, Reason, and the Human Brain.* New York: Avon Books, 1994.

Eberl, Jason T. "Aquinas on the Nature of Human Beings." *The Review of Metaphysics* 58, no. 2 (Dec. 2004): 333-365.

_____. "Aquinas's Account of Human Embryogenesis and Recent Interpretations." *Journal of Medicine and Philosophy*, Vol. 30 (2005): 379-394.

Fraga, Mario F., *et al*, "Epigenetic Differences Arise During the Lifetime of Monozygotic Twins," *PNAS* Vol. 102, no. 30 (26 Jul 2005), 10604-10609.

Grene, Marjorie. "Aristotle and Modern Biology," *Journal of the History of Ideas* Vol. 33, no. 3, Festrschrift for Philip P. Wiemer (Jul-Sep 1972): 395-424.

Hasker, William. *The Emergent Self.* Ithaca: Cornell University Press, 2001.

Jefferys, Derek S. "A Counter-Response to Nancey Murphy on Non-reductive Physicalism." *Theology and Science* 3, no. 1 (2005): 84-88.

_____. "The Soul is Alive and Well: Non-reductive Physicalism and Emergent Mental Properties." *Theology and Science* 2, no. 2 (2004): 205-225.

Kidd, Jeffrey M., *et al*, "Mapping and Sequencing of Structural Variation from Eight Human Genomes," *Nature* 453 (1 May 2008), 56-64.

Lander, Eric S., *et al*, "Initial Sequencing and Analysis of the Human Genome," *Nature* 409 (15 Feb 2001), 860-921.

Merricks, Trenton. "Endurance, Psychological Continuity, and the Importance of Personal Identity," *Philosophy and Phenomenological Research* Vol. 59, no. 4 (Dec 1999): 983-997.

_____. *Objects and Persons.* Oxford: Oxford University Press, 2003.

_____. “Realism About Personal Identity Over Time.” *Philosophical Perspectives*, Vol. 15, *Metaphysics* (2001): 173-187.

_____. “The Resurrection of the Body and the Life Everlasting.” In *Oxford Readings in Philosophical Theology, Vol. II*: *Providence, Scripture, and Resurrection*. Edited by Michael Rea. Oxford: Oxford University Press, 2009: 364-385.

_____. “The Word Made Flesh: Dualism, Physicalism, and the Incarnation.” In *Persons: Human and Divine*, Edited by Peter van Inwagen and Dean Zimmerman Oxford University Press, 2007: 281-300.

_____. “There are No Criteria of Identity Over Time,” *Nous* 32, no. 1 (Mar 1998), 106-124.

Meyer, Stephen C. *Signature in the Cell: DNA and the Evidence for Intelligent Design*. New York: HarperOne, 2009.

Murphy, Nancey C. *Beyond Liberalism and Fundamentalism: How Modern and Postmodern Philosophy Set the Theological Agenda*. Valley Forge, PA: Trinity Press, 1996.

_____. *Bodies and Souls, or Spirited Bodies?* New York: Cambridge University Press, 2006.

_____. “Nonreductive Physicalism: Philosophical Challenges.” in *Personal Identity in Theological Perspective.* Edited by Ricahrd Lints, Michael S. Horton, and Mark R. Talbot. Grand Rapids: Eerdmans, 2006, 95-117.

_____. “Physicalism Without Reductionism: Toward a Scientifically, Philosophically, and Theologically Sound Portrait of Human Nature.” *Zygon* 34, no. 4 (1999): 551-571.

_____. “Response to Derek Jeffreys.” *Theology and Science* 2, no. 2 (2004): 227-230.

_____. “The Resurrection Body and Personal Identity.” in *Resurrection: Theological and Scientific Assessments.* Edited by Ted Peters, Robert John Russell, and Michael Welker. Grand Rapids: Eerdmans, 2002, 202-218.

Pasnau, Robert. *Thomas Aquinas on Human Nature: A Philosophical Study of Summa theologiae Ia 75-89*. New York: Cambridge, 2002.

Plantinga, Alvin. “Against Materialism.” *Faith and Philosophy* 23, no. 1 (Jan 2006): 3-32.

_____. “Materialism and Christian Belief.” in *Persons: Human and Divine*. Edited by Peter van Inwagen and Dean Zimmerman. Oxford: Oxford University Press, 2007: 99-141.

Polkinghorne, John C. “Eschatological Credibility: Emergent and Teleological Processes.” in *Resurrection: Theological and Scientific Assessments.* Edited by Ted Peters, Robert John Russell, and Michael Welker. Grand Rapids: Eerdmans, 2002, 43-55.

_____. *The Faith of a Physicist: Reflections of a Bottom-Up Thinker*. Minneapolis, MN: Fortress Press, 1996.

Sacks, Oliver W. *Musicophilia: Tales of Music and the Brain.* New York: Vintage Books, 2008.

Shoemaker, Sydney and Richard Swinburne, *Personal Identity*. Oxford: Basil Blackwell, 1984.

Stump, Eleonore. *Aquinas*. London: Routledge, 2003.

_____. "Non-Cartesian Substance Dualism and Materialism without Reductionism." *Faith and Philosophy* 12, no. 4 (October 1995): 505-31.

_____. "Resurrection, Reassembly, and Reconstitution: Aquinas on the Soul." in *Die menschliche Seele: Brauchen wir den Dualismus?* Edited by Bruno Niederbacher and Edmund Runggaldier. Frankfurt: Ontos Verlag, 2006, 151-172.

Stump, Eleonore and Norman Kretzmann. "An Objection to Swinburne's Argument for Dualism." *Faith and Philosophy* 13, no. 3 (July 1996): 405-412.

Swinburne, Richard. *Existence of God.* Oxford: Oxford University Press, 2004.

_____. "Reply to Stump and Kretzmann." *Faith and Philosophy* 13, no. 3 (July 1996): 413-414.

_____. *The Evolution of the Soul.* New York: Oxford University Press, 1997.

van Dyke, Christina. "Human Identity, Immanent Causal Relations, and the Principle of Non-Repeatability: Thomas Aquinas on the Bodily Resurrection," *Religious Studies* 43 (2007) 373-94.

_____. *Metaphysical Amphibians: Aquinas on the Individuation and Identity of Human Beings.* Ph.D. diss., Cornell University, 2000.

_____. "Not Properly a Person: The Rational Soul and Thomistic Substance Dualism." *Faith and Philosophy* 26, no. 2 (April 2009): 186-204.

van Inwagen, Peter. "A Materialist Ontology of the Human Person," in *Persons: Human and Divine.* Edited by Dean Zimmerman and Peter van Inwagen. Oxford: Oxford University Press, 2007, 199-215.

_____. *Material Beings.* Ithaca, NY: Cornell University Press: 1990.

_____. "Materialism and the Psychological-Continuity Account of Personal Identity." *Nous* 31, Supplement: Philosophical Perspectives, no. 11, Mind, Causation and World (1997): 305-319.

_____. “The Possibility of Resurrection.” in *Oxford Readings in Philosophical Theology Volume II: Providence, Scripture, and Resurrection*. Oxford: Oxford University Press, 2009: 321-327.

Venter, J. Craig, et al. "The Sequence of the Human Genome," *Science* 291 (16 Feb 2001), 1301-1351.

Zimmerman, Dean. “Three Introductory Questions: Is Analytic Philosophical Theology an Oxymoron? Is Substance Dualism Incoherent? What’s in this Book, Anyway?” in *Persons: Human and Divine*. Edited by Peter van Inwagen and Dean Zimmerman. Oxford: Oxford University Press, 2007, 1-32.