THE HYLOMORPHIC STRUCTURE OF THOMISTIC MORAL THEOLOGY FROM THE PERSPECTIVE OF A SYSTEMS BIOLOGY

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by

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To my students, my parents, and the Mother of God.

In gratitude for the gift of joy.

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ABBREVIATIONS

CT	*Compendium theologiae*
DA	*Quaestio disputata de anima*
DP	*Quaestiones disputatae de potentia Dei*
De virt. in com.	*Quaestio disputa de virtutibus in communi*
De ente	*De ente et essentia*
De prin.	*De principiis naturae*
De spirit. creat.	*De spiritualibus creaturis*
De veritate	*Quaestiones disputatae de veritate*
In DA	*Sentencia libri de anima*
In DT	*Super Boethium de Trinitate*
In Phys	*In libros Physicorum*
In Sent.	*Scriptum super libros sententiarum*
SCG	*Summa contra gentiles*
STh	*Summa theologiae*

Unless otherwise indicated, all English translations from the Latin and the French originals are mine.

ACKNOWLEDGEMENTS

INTRODUCTION

As one of Aristotle's most significant medieval interpreters, St. Thomas Aquinas adopted many of the Philosopher's fundamental philosophical notions, including his hylomorphic doctrine that substances, especially living substances, are composites of matter and form.[1] It should not be surprising, therefore, that a digital search for every single use of hylomorphic terminology, either the words, form or matter, or their variants, in the text of his *Summa theologiae,* a mature and unfinished work dating to the end of St. Thomas's life, reveals that he appealed to hylomorphism whenever he wanted to interrogate the metaphysical structure of different realities, including God (*STh* I.3.2), angels (*STh* I.50.2), human beings (*STh* I.76.1ff), the human intellect (*STh* I.88.1), the human soul (*STh* I.90.2), the union that is the incarnate Word (*STh* III.2.1ff), and the sacraments (*STh* III.60.6ff). What may be surprising, however, is the analogical use of this matter-form language when St. Thomas discusses what today would be called his moral theology found in the *Secunda Pars* of the *Summa.*

A search of the ethical and theological literature reveals that no one has looked at the overall hylomorphic structure of St. Thomas's moral theology, though scholars have

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[1] "Hylomorphism" has also been spelled "hylemorphism." For a fascinating history of the term, "hylomorphism," and its eventually association with the matter-form doctrine of Aristotle and his commentators, see Gideon Manning, "The History of 'Hylomorphism'," *Journal of the History of Ideas* 74 (2013): 173-187. As Manning amply catalogs, Aristotle put matter-form terminology to many uses in his *corpus.* For example, Aristotle differentiated the sublunary world from the celestial one by noting that celestial objects had forms, but no earthly matter; he identified the form of living things as their soul and their body as their matter; and he understood sensation to result when a form was received by the sense organs without any concomitant matter from the object being perceived. For a recent study of Aristotle's hylomorphic doctrine, see Sean Kelsey, "Hylomorphism in Aristotle's Physics," *Ancient Philosophy* 30 (2010): 107-124.

investigated his use of matter-form language in a select few areas of moral inquiry. In this thesis, I will make the case that St. Thomas's conviction that creation is fundamentally hylomorphic in constitution carries over to his moral theology. To be ignorant of this fact is to be ignorant of a crucial epistemological and organizing principle of the *Secunda pars* of the *Summa.* In contrast, as I will show in the chapters that follow, to be aware of this feature of St. Thomas's moral theology is to be equipped to interrogate, to penetrate, and to advance his theological synthesis. I will also propose that developments in contemporary biology, specifically in systems biology, provide us with a conceptual framework that can rehabilitate classical hylomorphism in the face of the critiques of the philosopher-scientists of the early modern period. This conceptual framework – which I call systems hylomorphism – validates that hylomorphic analysis of Thomistic moral theology that makes up the bulk of this thesis.

In Chapter One, I will begin by summarizing St. Thomas's hylomorphic account of matter and form as he described it in his *De principiis naturae*, a youthful work written when the Angelic Doctor was still a bachelor of the sentences at the University of Paris (1252-1256), or even earlier. I then turn to two separate but complementary discussions on the nature of prime matter and of substantial form as St. Thomas conceived them, to lay down the basic ontological principles that we will use throughout the thesis.

To see how St. Thomas most famously used matter and form language in his theological synthesis, I move next to a summary of his description of the human agent, an account that is presupposed by the moral analysis that takes up the bulk of this dissertation. Finally, I close with an overview in broad strokes of how the hylomorphic character of reality is a recurring theme that runs throughout the mature theology of St.

Thomas in his *Summa theologiae,* with a particular focus on how this ontological framework, analogously understood, is foundational for his moral theory in the *Secunda pars.*

In Chapter Two, I begin a series of four philosophical and theological investigations of the hylomorphic structure of Thomistic moral theology with a look at the hylomorphic framework used by St. Thomas to ground his theory of action. I open with his description of a human act from two complementary perspectives before moving to a discussion of the moral specification of an act as being either good or evil. Moral specification is undertaken by the agent himself when he deliberates the most prudent means towards attaining his end. To deepen our analysis, we then turn to objections to the Thomistic theory of action described in this third chapter. I focus on the criticisms proffered by two contemporary Thomists, Fr. Martin Rhonheimer and Steven Long. Rhonheimer is representative of those moralists today who emphasize the primacy of the end in the moral specification of a human act, while Long is representative of one of two groups of moral theologians opposed to this view.

I close with a close bioethical analysis of a much-publicized abortion case involving a placentectomy – a medical intervention to extract the placenta, the fetal/maternal organ that connects the developing fetal child to the uterine wall – to end the pregnancy of a woman with pulmonary arterial hypertension (PAH), performed at a formerly Catholic hospital in Phoenix, AZ. This chapter will illustrate how an understanding of hylomorphic theory and its analogous use in St. Thomas's theory of human acts can clarify and resolve disputed questions in contemporary moral theology.

In the third chapter, I interrogate the hylomorphic framework used by St. Thomas to understand the passions in order to bring the Thomistic tradition into conversation with our present-day biological understanding of the emotions. I begin with his description of a human passion as a hylomorphic reality with the appetitive movement as its formal and with the bodily reaction as its material principles, situating it within his anthropological understanding of the human person as a hylomorphic substance. I then focus on St. Thomas account of fear, which he claims, of all the other movements of the soul after sorrow, has chiefly the character of a passion. Next, I move to St. Thomas's hylomorphic account that relates the acts of the intellect and of the will, the acts involved in our ability to know and to choose, to the movements of the sensitive appetite, the acts involving in our ability to feel, as form is related to matter.

I then propose that this hylomorphic understanding of the passions is an antidote to the current problem faced by neuroscientists, accurately described by world-renowned investigator, Joseph LeDoux, of describing fear without falling victim to a dualistic understanding of the emotions. To demonstrate its explanatory power, I illustrate how this hylomorphic theory of the passions can explain the phenomenology of fear in a manner that is compatible with the best data of contemporary neuroscience. This chapter will illustrate how an understanding of hylomorphic theory and its analogous use in St. Thomas's moral theology can clarify contemporary questions extending beyond theology, in this case in the neuroscience of emotions, which have a direct impact on moral theology because of the impact that passions have on our intellect and on our will.

In Chapter Four, I move on to the hylomorphic framework used by St. Thomas to understand the virtues. I begin with a narrative of the Angelic Doctor's hylomorphic

account of the essence of virtue and of the species of virtues. I will focus on his categorization of the virtues according to their material cause and then of their efficient cause. I move next to a hylomorphic investigation of the relationship between individual virtues before turning to an exploration of the cooperative interaction between the acquired and the infused moral virtues. For the latter analysis, I will summarize and evaluate two proposals by Fr. George Klubertanz, S.J., and Sr. Renée Mirkes, O.S.F., who use matter-form language to describe this cooperative interaction, and conclude that the first account is the better of the two as long as it is revised in several ways.

I build on this analysis and conclude this chapter by exploring the relationship between the acquired and the infused intellectual virtues, precisely to determine how grace alters the life of the mind. I propose that the theological virtue of faith takes the place of the infused counterparts for acquired understanding, acquired sure knowledge, and acquired wisdom. Therefore, I argue that only a Christian in the state of grace can do theology, properly understood. Like Chapter Two, this chapter will illustrate how an understanding of hylomorphic theory and its analogous use in St. Thomas's moral theology can clarify and resolve another disputed contemporary moral questions as well as illuminate other dimensions of St. Thomas's theological synthesis.

In the fifth chapter, I undertake a hylomorphic investigation of the structure of human speech acts to argue that not all spoken falsehoods constitute lies because not all spoken falsehoods involve disordered speech. I begin with a detailed analysis of St. Thomas's understanding of lying as a vice contrary to truth with a particular focus on the hylomorphic description of speech acts that he uses to evaluate their morality. At the heart of his claim that all intentionally spoken falsehoods are lies is his belief that speech

has only one function, and that this is its declarative function. In response, I propose that St. Thomas failed to appreciate that human vocalizations have multiple ends in the order of nature, including functions that do not involve signification, a claim supported by evidence from studies of primate vocalization and by evidence from studies of contemporary speech act theory in the philosophy of language.

To reconcile the Angelic Doctor's philosophical and theological synthesis with recent developments in the linguistic study of context-dependent meaning known as pragmatics, I then propose that to properly investigate the morality of human speech acts from the perspective of the Thomistic tradition, we must recognize that the human speaker is an efficient cause who is capable of informing the same material cause of the speech act with numerous formal causes to attain a particular final cause. Finally, I close by using this Thomistic theory of speech acts to grapple with three disputed questions in contemporary moral theology, the perennial lying-during-espionage case, the classic lying-to-the-Gestapo case and the recent lying-to-Planned-Parenthood case that has perplexed Catholic moralists. This chapter will illustrate how an understanding of hylomorphic theory and its analogous use in St. Thomas's theory of speech acts can allow us to develop his moral theology so that it can incorporate insights from comparative physiology and analytic philosophy.

Finally, in Chapter Six, the last substantial chapter of this thesis, I describe a theoretical framework that seeks to rehabilitate a classical Thomistic account of matter and form within the realm of contemporary biology. How are we to talk about a "form," "nature," or the "disposition of matter" in the 21st century? However, before I do this, I think that it is important to understand and to respond to the scientific objections to

hylomorphism that were raised by the philosopher-scientists of the early modern period. Why did these philosophers, whose lives spanned the seventeenth century, think that the rejection of classical hylomorphism was necessary for the scientific revolution that they helped to trigger?

I then move to an overview of systems biology, an emerging field of scientific investigation, which in my view is inherently open to a hylomorphic account of creation because of its own hylomorphic structure. I close the chapter with an account of the human organism that is not only consonant both to classical hylomorphism and contemporary science but is also corrective of the scientific objections of the early modern philosophers. This systems account is a conceptual framework that validates the hylomorphic analysis in moral theology that has been the focus of the earlier chapters of this thesis.

In sum, this thesis will demonstrate through a series of four philosophical and theological investigations that acknowledging the hylomorphic framework of St. Thomas's moral theology will allow us to interrogate, to penetrate, and to advance his theological synthesis in conversation with other, often rival, intellectual traditions, philosophical, theological, and scientific. It also validates matter-form language by rooting the classical hylomorphism of St. Thomas in a systems biology that is inherently open to a hylomorphic account of creation. In doing so, it opens up a space in contemporary discourse for the recovery of a more robust understanding of nature, understood as the source and the foundation for an organism's species-specific activity.

CHAPTER ONE

The Classical Hylomorphism of St. Thomas Aquinas

<u>Introduction</u>

Hylomorphism is a philosophical theory about the nature of matter and of form. But what is matter, and what is form? In a recent scholarly paper, Leo P. Kadanoff, who is a physicist and a philosopher of physics, makes it clear that in his view and in the view of his colleagues in the contemporary academy, matter should be understood as aggregations of atoms that are made intelligible by the theory of statistical physics and by the theory of phase transitions.[1] In a second scholarly paper, Nadya Morozova and Mikhail Shubin, who are both mathematicians working on biological problems, have proposed that form should be understood as the geometrical shape of a developing organism specified by biological information encoded in that organism's cells.[2] Both views are commonplace today. However, neither is the matter nor the form associated with classical hylomorphic theory. Neither is the view of St. Thomas Aquinas.

In this chapter, I will begin my investigations of the hylomorphic structure of Thomistic moral theology by summarizing St. Thomas's own account of matter and form as he described it in his *De principiis naturae*, a youthful work written when the Angelic Doctor was still a bachelor

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[1] Leo P. Kadanoff, "Theories of Matter: Infinities and Renormalization," in *The Oxford Handbook of Philosophy of Physics*, ed. Robert Batterman (Oxford: Oxford University Press, 2013), pp. 141-188.

[2] Nadya Morozova and Mikhail Shubin, "The Geometry of Morphogenesis and the Morphogenetic Field Concept," in *Pattern Formation in Morphogenesis,* ed. Vincenzo Capasso, Misha Gromov, Annick Harel-Bellan, Nadya Morozova and Linda Louise Pritchard (Berlin: Springer, 2013), pp. 255-282.

of the sentences at the University of Paris (1252-1256), or even earlier.[3] As John F. Wippel has

convincingly shown, this text anticipates much of the analysis in St. Thomas's later works

concerning matter and form, including his commentaries on Aristotle's *Physics* and *Metaphysics*.[4]

It also has the added advantage in that this text is an independently written work with its own

integrity and coherence, rather than an Aristotelian commentary that is shaped and governed by

the concerns of the Philosopher. Nonetheless, I will supplement the *De principiis* text with

citations from the *Summa theologiae*, to illustrate the continuity of his hylomorphic theory over

the course of St. Thomas's academic career. I then turn to two separate but complementary

discussions on the nature of prime matter and of substantial form as St. Thomas conceived them,

to lay the foundations for the contemporary account of systems hylomorphism that will be

described and defended later in this thesis. To see how St. Thomas most famously used matter

and form language in his theological synthesis, I move next to a summary of his description of

the human agent, an account that is presupposed by the moral analysis later in this dissertation.

Finally, I close with an overview of how the hylomorphic character of reality is a recurring theme

that runs throughout the mature theology of St. Thomas in his *Summa theologiae,* with a

particular focus on how this ontological framework, analogously understood, is foundational for

his moral theory.

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[3] Jean-Pierre Torrell, O.P., *Saint Thomas Aquinas. Volume 1: The Person and His Work* (Washington, D.C.: The Catholic University of America Press, 1996), pp. 48-49.

[4] John Wippel, *The Metaphysical Thought of Thomas Aquinas* (Washington, D.C.: The Catholic University of America Press, 2000), p. 296. In his recent summary of Thomistic hylomorphism, Jeffrey Brower chose to focus his discussion on the philosophical framework found in the *De principiis naturae* as well. See his "Matter, Form, and Individuation" in *The Oxford Handbook of Aquinas*, ed. Brian Davies and Eleonore Stump (Oxford: Oxford University Press, 2012), pp. 85-103. Brower notes that in most cases, parallel passages in the *De principiis* can be found in St. Thomas's *Sententia super Physicam*, which is the Angelic Doctor's other main discussion of change.

<u>The Thomistic Theory of Hylomorphism in the *De Principiis Naturae*</u>

As Aristotle had done centuries before him, St. Thomas Aquinas posited the theory of hylomorphism – the proposal that corporeal things of a natural kind are composed of two principles of corporeal being, matter (*hyle*) and form (*morphe*) – primarily to explain the reality of change, what the ancients called the processes of generation and of corruption.[5] Accordingly, in his *De principiis naturae*, St. Thomas begins by noticing that in the natural world, corporeal beings can change because they can exist in numerous ways.[6] They can exist though they do not yet exist, and these are said to be in potentiality, while others can exist and they do exist, and these are said to be in actuality. He moves on to point out that there are two kinds of actual existence, two ways in which something corporeal can actually exist. First, there is substantial existence, which is to be a kind of corporeal being simply, and then, there is accidental existence, which is to be a kind of corporeal being in a qualified way. To illustrate this distinction, St. Thomas explains that when a man exists, he exists simply, and this is called his substantial existence, while when he exists as a white man, he exists in a qualified way, and this is called one of the ways he has accidental existence.

In a parallel manner, St. Thomas notes that there are two kinds of potential existence. The potency to substantial existence, he calls prime matter, the *materia ex qua*, the "matter out of

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[5] However, as John Wippel explains, if one is to properly appreciate the scope of the Angelic Doctor's thought regarding matter and form, this approach to understanding Thomistic hylomorphic theory from the perspective of the philosophy of nature needs to be complemented with a metaphysical analysis that examines the explanatory links between the theory of matter and form and the nature of predication by denomination. Given my particular interest in locating hylomorphic theory within a philosophy of nature informed by contemporary systems biology, this kind of a metaphysical analysis falls outside the purview of this thesis. Nonetheless, for further discussion, see his *The Metaphysical Thought of Thomas Aquinas*, pp. 303-312.

[6] The summary of the *De principiis naturae* presented here is indebted to the lucid analysis and interepretation of this *opusculum* by Joseph Bobik: *Aquinas on Matter and Form and the Elements* (Notre Dame, IN: University of Notre Dame Press, 1998).

which" a corporeal being comes to be, while the potency to accidental existence, he calls a subject, or elsewhere, secondary matter, the *materia in qua*, the "matter in which" that corporeal being comes to be in a particular way. Finally, corresponding to both kinds of potency, there are two causes of actuality, which are called form, where that which causes substantial existence is called substantial form, and that which causes accidental existence is called accidental form.

Next, St. Thomas moves to distinguish the two types of change that occur in the natural world, where change, as he defines the term elsewhere, is the process whereby "something should be otherwise now from what it was before."[7] Change that involves the coming into existence is called generation, while change that involves the going out of existence is called corruption.

Moving even closer to the object of his investigation, St. Thomas then observes that there are two kinds of generation, generation simply and generation with respect to something or other. Generation simply involves motion to substantial form. It is the corporeal being coming to be simply. It is the kind of change that involves a radical alteration in the very nature of the thing. Using an outdated scientific example, St. Thomas uses the transformation of sperm and menstrual blood into a human being to illustrate this first kind of change, which is called substantial change: "For when a substantial form is introduced, something is said to come to be simply. Thus, we say that a man comes to be or that a man is generated."[8] In contrast, generation with respect to something or other involves the motion to accidental form. It is the kind of change that involves an alteration in some aspect of the corporeal being. St. Thomas uses the

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[7] *STh* I.42.2 ad 2: "Nam de ratione mutationis est, quod aliquid idem se habeat aliter nunc et prius." Thus, change here has to be seen in contrast to the processes of creation and of annihilation where there is no subject that perdures through the process of transformation. Rather the subject is either created from nothing or annihilated to nothing.

[8] *De prin.*, no. 4: "Quando enim introducitur forma substantialis, dicitur aliquid fieri simpliciter, sicut dicimus: homo fit vel homo generator."

example of a dark man who becomes white to highlight this second kind of change, which is called accidental change: "Thus, when a man comes to be white, we do not say simply that the man comes to be or is generated but that he comes to be or is generated as white."[9]

Finally, given that the process of corruption is opposed to that of generation, St. Thomas acknowledges that there are also two ways of ceasing to be that are observable in the natural world. There is corruption simply, whereby one kind of thing changes into another kind of thing, and then there is corruption with respect to something or other, whereby an already existing subject ceases to be either this or that. Though corruption is opposed to generation, it is important to acknowledge, however, that every process of generation involves corruption and vice-versa, for corruption of one kind of thing means the generation of another kind of thing, and vice-versa.

After his observations on the different kinds of change in the world, St. Thomas moves, from Chapter 2 of the *De principiis naturae* onwards, to provide an account that explains the reality of this change. How can we explain the nature of either generation or corruption? This account begins with a description of the three principles of change and ends with a description of the four causes of change.

First, there are the principles, the three constituents of change, where a principle is defined as something from which something else begins or takes its origin, whether the existence of the second thing follows from the first thing or not.[10] St Thomas has already discussed two of these principles. There is matter, which is the potency towards actual being. It is the starting

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[9] *De prin.,* no. 4: "Sicut quando homo fit albus, non dicimus simpliciter hominem fieri vel generari sed fieri vel generari album."
[10] *De prin.*, no. 18. For discussion, see Bernard Wuellner, S.J., *Summary of Scholastic Principles* (Chicago: Loyola University Press, 1956), pp. 1-5.

point of change – the *terminus a quo*, the end from which – because it is the point from which generation begins or departs. Then there is the form, which is the constituent through which the potency is realized in an actuality. It is the ending point of change – the *terminus ad quem*, the end to which – because it is the point towards which generation ends or arrives.

For completeness, however, as Aristotle had done before him, St. Thomas introduces a third principle, a third constituent, to his explanation of change, a principle which he and the other ancients, called privation. While matter, according to St. Thomas, can be said to be being in potency, i.e., the nonexistence of being in general, privation is the nonexistence of a particular actuality in being. Both principles of being exist in the subject prior to the change but they differ in description. To illustrate this distinction, St. Thomas points to a lump of bronze that is transformed into a bronze statue. Before the change, the lump of bronze is in potency to becoming a statue generally. Thus, it can be said that at the level of accidental being, the lump of bronze is said to be the matter understood here not as primary but as secondary matter. However, the lump is also without a particular shape as a statute. Before the change, it is in potency to becoming a replica either of a David or of a Statue of Liberty or of a potentially infinite number of other statues. This absence of a particular shape as a statue in the lump of bronze is its privation for that particular shape. As we will see in more detail below, these three principles are needed to explain change, because one needs to explain how this specific thing becomes, not a generic other thing, which is impossible, but another specific thing with its own particular identity and nature.

Significantly, St. Thomas explains that of these three principles of being, the first two, matter and form, are principles of nature *per se*, i.e., in themselves, while the third, privation, is only a principle of nature *per accidens*, i.e, in and through another. To put it another way, to

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explain how things are and how they undergo change, matter and form, according to St. Thomas, must be real principles that have actual existence in every existing material thing. Take a bronze Statue of Liberty that one can buy on Fifth Avenue in New York City. At the level of accidental being, the statue is made of bronze, which is its matter – properly speaking its secondary matter – that is organized in a particular Statue-of-Liberty way, which is its form. Both are necessary constituents of the thing. Both need to exist if the statue is to exist. Both need to exist in themselves, *per se*, for the composite, the statue, to exist. Without either one – without the bronze or its particular shape – the Statue of Liberty could not be what it is now as an existing thing. In contrast, privation – what something is not at this point in time, but what it could become at some later point in time – is not a necessary constituent of a thing. Returning to our example, the existence of a bronze Statue of Liberty can be fully explained without referring to all the other kinds of statues that this lump of bronze could have become in alternate universes. As St. Thomas explains this distinction in his *Commentary on Aristotle's* Physics:

> Matter is almost a thing and exists in some way because it is in potency to a thing
> and it is in some way the substance of the thing, because it enters into the
> constitution of the substance; but this cannot be said about privation.[11]

Thus, privation – the potency towards a particular kind of being – only has existence through another, *per accidens.* Its existence depends on the real existence of the matter, the more radical potency to being, which exists in the thing. Nonetheless, privation is still important for a complete description of change, because as I already noted above, one needs to explain how this

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[11] *In Phys.* I Lect 15, no. 4: "Materia est prope rem, et est aliqualiter, quia est in potentia ad rem, et est aliqualiter substantia rei, quia intrat in constitutionem substantiae: se hoc de privatione dici non potest."

one specific thing becomes, not a generic other thing, but another specific thing with its own particular identity and nature.

Finally, St. Thomas rounds out his explanation of change with a description of the four causes of being first articulated by Aristotle. He does this to explain *how* the potency of matter is actually actualized by a particular form to become this particular thing here and now. Returning to our example, he does this to explain how does this lump of bronze actually become the bronze Statue of Liberty that I bought from a sidewalk vendor on Fifth Avenue.

At this point, let me note that St. Thomas has a radically different definition for a cause from the one commonly used today. In the mechanical worldview that is prevalent in our own day, which as we will see in Chapter Six is a worldview that we inherited from the early modern period in the seventeenth century, causes are the forces or powers that are responsible for the activity and the behavior – often understood as the motion or the movement of something from one place to another – of a material thing. In contrast, in the substantial worldview of the ancients, causes are principles of explanation that account not only for the behavior of, but also, and more importantly, for the very existence of the things that are in the world. As St. Thomas explains it: "It is said that a cause is that from which existence follows from another."[12] In other words, within the Thomistic framework, causes explain how a thing comes into being, how it remains in being, and eventually, how it ceases to be, by becoming something else.

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[12] *De prin.,* no. 18: "Unde dicitur quod causa est id ex cuius esse sequitur aliud." Therefore, by definition, the causes are all principles but not all the principles are causes. Matter and form are causes because the existence of a thing depends on them, but privation is not a cause because the existence of a thing does not depend on a prior potency that explains what it could have become. Nonetheless, we can say that a privation is a cause *per accidens*, in as much as it accompanies matter, which is a cause *per se*.

Given this definition of cause, it should not be surprising that for St. Thomas, as it was for the ancients, matter and form are causes. Both are required for a corporeal being to exist. They explain the existence and change of corporeal things. As I noted above, matter is a potency to exist as something, while form is the actualization that brings a potential existing thing into existence as a particular kind of thing. Thus, St. Thomas explains that both of these causes – matter and form – are intrinsic causes: They are the principles that constitute a thing from within.[13] In addition to these causes, St. Thomas, like Aristotle before him, posits the existence of two more causes to explain the coming to be of an existing something. Third, there is the efficient or agent cause.[14] This is the cause that realizes the potency of the matter by educing a form from within it. In our example, the sculptor is the efficient cause who shapes the lump of bronze into this Statue of Liberty. He reveals a form, in this case, an accidental form, that had only existed potentially in the bronze. According to St. Thomas, one needs to posit the existence of an efficient or agent cause to explain change because what is in potency cannot bring itself into a state of actuality.[15] In other words, matter cannot bring itself into being. What does not exist cannot bring itself into existence. Form too cannot bring matter into being for it does not exist until after the change is complete. Thus, to adequately explain change, one needs to posit a third principle of change in addition to the material and to the formal causes, which exist at the beginning of the process of change to bring about the change in the matter when it is informed by the form. This third cause is the efficient cause, which the ancients also called, the agent cause.

Finally, there is the fourth cause that completes St. Thomas's explanation for change, the cause he calls the final cause, the end or the purpose that moves the efficient cause to realize the

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[13] *De prin.,* no. 17.
[14] Ibid., no. 15.
[15] Ibid.

form in the matter. As the Angelic Doctor points out, if an agent cause was not inclined, either by its own choice or by its own nature, towards the fulfillment of its actions, then no action, no change, would take place. Thus, the final cause is the explanation for the very existence of this inclination that precedes change. It is the cause that moves the agent to act as an agent. For a voluntary agent cause, the final end is the purpose for which the agent is acting. A man knows and deliberates about the ends of his actions. He is then able to know and choose from among the means available to him to achieve those ends. In our example, it is the idea of the Statue of Liberty that motivates the sculptor to shape the bronze into this particular statue rather than into that other statue. In contrast, for a non-voluntary agent cause – what St. Thomas calls a natural cause – the final end is determined by its nature. Dogs are inclined to chase cats by their nature, while cats are inclined to chase mice by theirs. They do this without deliberation. Thus, as the Angelic Doctor explains, to say that a natural agent intends an end is to say that it is naturally inclined towards those actions that will allow it to achieve the end that is predetermined by its nature.[16] In contrast to the material cause and to the formal cause, these final two causes – the efficient cause and the final cause – are extrinsic causes because they act from outside the thing.

To summarize, in *De principiis naturae*, St. Thomas Aquinas proposes a hylomorphic theory to explain the different commonsensical kinds of change observable in creation and the different kinds of things that result from these changes. His four Aristotelian causes provide an account for how a thing – the hylomorphic compound that Aristotelians and Thomists call a substance – comes into being, how it remains in being, and how it actually goes out of being, becoming something else. With this overview of Thomistic hylomorphism in mind, I now turn to

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[16] Ibid., no. 16.

more focused discussions of the nature of the two intrinsic and *per se* causes of substantial being, prime matter and substantial form.

The Thomistic Theory of Prime Matter

From my conversations with my scientific colleagues, of the two intrinsic causes of being, matter and form, Thomistic "matter" is probably the more mysterious of the two.[17] Recall that matter, as St. Thomas and the ancients had understood it, and more properly, prime matter, is potency to being. As such it should not be confused with the modern conception of matter – a view originating with Descartes in the seventeenth century[18] – as the "stuff" or the "materials" that constitute those physical objects with extension, i.e., those objects with length, breadth, and depth. In contrast, Thomistic matter is not a particular thing but is only a potency to be a particular thing that is present in another particular thing.[19] Thus, properly speaking, Thomistic matter is not a thing. Rather, it is a principle of being *by which* a thing exists. Or to put it another way, it is a non-substantial but really existing metaphysical principle of being that is involved in the constitution of a thing of a natural kind.[20]

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[17] For a comprehensive discussion of how the understanding of matter has changed throughout history, see Ernan McMullin, ed. *The Concept of Matter* (Notre Dame: University of Notre Dame Press, 1963).

[18] Cf. Rene Descartes, "Principles of Philosophy, Part Two: The Principles of Material Things," in *The Philosophical Writings of Descartes*, Volume I. Trans. John Cottingham, Robert Stoothoff, and Ougald Murdoch (Cambridge: Cambridge University Press, 1985), pp. 223-247.

[19] *In DA*, II Lect 1, no. 5.

[20] For an excellent discussion of this distinction see Francis McMahon, "Being and Principles of Being," *The New Scholasticism* 17 (1943): 322–339. See also J.A.J. Peters, C.Ss.R. "Matter and Form in Metaphysics," *The New Scholasticism* 31 (1957): 447–483. Thus, it is important not to repeat the mistake of Suarez who posited that form and matter are imperfect or incomplete substances. For discussion, see David M. Knight, S.J., "Suarez's Approach to Substantial Form," *Modern Schoolman* 39 (1962): 219–39; and Helen Hattab, "Suarez's Last Stand for Substantial

As I explained above, according to St. Thomas, there are two kinds of matter, two kinds of potency, which correspond to the two kinds of change observable in creation. First, there is prime or first matter, which is the potency that is actualized during substantial change and remains as a constituent of substantial being. Then there is secondary or second matter, which is the potency of a substantial being, already determined as a thing of a natural kind, to further accidental determinations that Aristotelians and Thomists called the thing's qualities. In our statue example, prime matter is the potency to bronze, while second matter is the potency of the bronze to a particular shape, in our case, the shape of the Statue of Liberty. Of the two, as its name suggests, prime or first matter is the more important. It is one of the intrinsic causes of being. It is one of those metaphysical constituents that makes a corporeal thing a corporeal thing that exists.

In contrast to the views of many of his contemporaries who had thought that prime matter enjoys some actuality in itself[21], St. Thomas proposed that prime matter is pure potency: "The act to which prime matter is in potency is the substantial form. Therefore, the potency of matter is nothing else but its essence."[22] Thus, according to St. Thomas, prime matter is utter formlessness: "Created matter is formless so that it may be accommodated to different forms."[23]

Form," in *The Philosophy of Francisco Suarez,* ed. Benjamin Hill and Henrik Lagerlund (Oxford: Oxford University Press, 2012), pp. 100-118.

[21] For details and discussion, see Allan B. Wolter, "The Ockhamist Critique," in *The Concept of Matter in Greek and Medieval Philosophy*, ed. E. McMullin (Notre Dame, IN: University of Notre Dame Press, 1965), pp. 124-146.

[22] *STh* I.77.1 ad 2: "Actus ad quem est in potentia materia prima, est substantialis forma. Et ideo potentia material non est aliud quam eius essentia."

[23] *STh* I.47.1: "Materia creata est difformitas, ut esset diversis formis accommodata."

Elsewhere, he notes that prime matter is pure potency and as such is farthest, metaphysically speaking, from God who is pure act.[24] By its very nature, prime matter is radical potency.[25]

Three metaphysical conclusions follow from the claim that prime matter is radical potency. First, as pure potency, prime matter does not and cannot exist by itself. It can only exist in conjunction with a substantial form that actualizes its potency. As St. Thomas explains it, "prime matter has substantial being through form…else it would not be in act."[26] Or again, "matter is being in potency and becomes being in act through the coming of form, which is the cause of its being."[27] Or again, "Matter cannot exist in the nature of things unless it is formed by some form. For whatever is found in the nature of things exists actually, and actual matter comes to a thing from its form which is its act. Therefore, in the nature of things, matter cannot be found without form."[28] Indeed, according to St. Thomas, God Himself would not be able to create prime matter without form because this would involve an inherent logical contradiction:

> For if formless matter preceded in duration, then it already exists in act, for this is
> what duration implies, since the end of creation is being in act, and that which is
> in act itself is form. Therefore, to say that matter proceeds without form, is to say
> that being is in act without act, which is a contradiction.[29]

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[24] *STh* I.115.1 ad 2.

[25] For discussion, see Norbert Luyten, O.P., "Matter as Potency," in *The Concept of Matter*, ed. E. McMullin (Notre Dame: University of Notre Dame Press, 1963), pp. 122-133.

[26] *STh* I.84.3 ad 2: "Materia prima habet esse substantiale per formam…alioquin non esset in actu."

[27] *De spirit. creat.* a.1 ad 5: "Materia est ens in potentia et fits ens actu per adventum formae, quae est ei causa essendi."

[28] *DP*, q. 4 a.1 co: "Materia non potest in rerum natura existere, quin aliqua forma formetur. Quidquid enim in rerum natura invenitur, actu existit, quod quidem non habet materia nisi per formam, quae est actus eius; unde non habet sine forma in rerum natura inveniri."

[29] *STh* I.66.1: "Si enim materia informis praecessit duratione, haec erat iam in actu, hoc enim duratio importat, creationis enim terminus est ens actu. Ipsum autem quod est actus, est forma.

Prime matter can only exist as a constituent of the substance of which it is an intrinsic cause. It is inseparable from the form that gives it its being. Properly speaking, therefore, it is co-created rather than created.[30]

Next, as pure potency, prime matter cannot be known in and through itself. According to St. Thomas, things of a natural kind are and can be known only insofar as they are in act. As such, prime matter cannot be known except through the substantial form that actualizes its potency:

> Since each thing is intelligible as it is in act, as it is said in the *Metaphysics*, it must
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> be that the nature or the quiddity of a thing is understood either as it is an act, as
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> in the case of forms themselves or of simple substances, or through that which is
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> its act, as in the case of composite substances through their forms, or through that
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> which is in the place of its act, as prime matter [is known] through its relationship
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> to form and a vacuum through the absence in a place.[31]

In another context, however, St. Thomas adds that prime matter can also be known either by analogy or by proportion, in that prime matter is related to form in the same way that wood is related to a bench:

> Prime matter is considered to be the subject of all forms. But it is known by
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> analogy, that is, according to proportion. For in this way, we know that wood is

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Dicere igitur materiam praecedere sine forma, est dicere ens actu sine actu, quod implicat contradictionem."

[30] *STh* I.9.2 ad 3.

[31] *In DT*, q. 5 a. 3 co: "Cum enim unaquaeque res sit intelligibilis, secundum quod est in actu, ut dicitur in IX metaphysicae, oportet quod ipsa natura sive quiditas rei intelligatur: vel secundum quod est actus quidam, sicut accidit de ipsis formis et substantiis simplicibus, vel secundum id quod est actus eius, sicut substantiae compositae per suas formas, vel secundum id quod est ei loco actus, sicut materia prima per habitudinem ad formam et vacuum per privationem locati."

other than the form of a bench and of a bed, because sometimes it underlies the one form and sometimes the other. When therefore we see that air sometimes comes to be in the form of air and sometimes in the form of water, it is necessary to say that there is something that exists sometimes under the form of air and sometimes under the form of water, and as such is something other than the form of air, as in wood there is something other than the form of a bench and other than the form of a bed. This something that is related to these natural substances as bronze is related to the statue, and wood to the bed, and anything material and unformed, to form, this is what we call prime matter.[32]

As John Wippel notes, these two approaches are not mutually exclusive. They point to the reality that prime matter is pure potency. According to St. Thomas, even God cannot know prime matter directly. Instead there is a divine idea for matter but one that is not distinct from the divine idea of the substance that is the composite of that prime matter and a specific substantial form.[33]

Finally, as pure potency, prime matter can function as the principle of individuation that distinguishes one individual thing from another individual of the same natural kind.[34] According

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[32] *In Phys.* I Lect 13, no. 9: "Materia autem prima consideratur subiecta omni formae. Sed scitur secundum analogiam, idest secundum proportionem. Sic enim cognoscimus quod lignum est aliquid praeter formam scamni et lecti, quia quandoque est sub una forma, quandoque sub alia. Cum igitur videamus hoc quod est aer quandoque fieri aquam, oportet dicere quod aliquid existens sub forma aeris, quandoque sit sub forma aquae: et sic illud est aliquid praeter formam aquae et praeter formam aeris, sicut lignum est aliquid praeter formam scamni et praeter formam lecti. Quod igitur sic se habet ad ipsas substantias naturales, sicut se habet aes ad statuam et lignum ad lectum, et quodlibet materiale et informe ad formam, hoc dicimus esse materiam primam."

[33] *STh* I.15.3.

[34] For discussion, see R.A. O'Donnell, "Individuation: An Example of the Development of the Thought of St. Thomas Aquinas," *The New Scholasticism* 33 (1959): 49-67; Joseph Owens,

to St. Thomas, prime matter is what ultimately explains the distinction among material objects belonging to the same natural kind. In his commentary on the *De Trinitate* of Boethius – John Wippel has shown convincingly that this is the fullest statement of St. Thomas's view on individuation[35] – the Angelic Doctor explains that the diversity in individuals of the same species can be attributed to the form that is received in matter.[36] However, since matter in itself lacks all differentiation – recall that for St. Thomas, it is pure potency – matter can individuate the received form only insofar as it itself bears some distinguishable mark. Therefore, "for form is not individuated by being received in matter, but only insofar as it is received in *this* distinct and determined matter, here and now."[37] St. Thomas concludes that prime matter

> is the principle of diversity according to genus inasmuch as it is the subject of a common form, and so likewise it is the principle of diversity according to number inasmuch as it is the subject of indeterminate dimensions. Because these dimensions belong to the genus of accidents, diversity according to number is sometimes reduced to the diversity according to matter and sometimes to the diversity according to accidents.[38]

"Thomas Aquinas: Dimensive Quantity as Individuating Principle," *Mediaeval Studies* 50 (1988): 279-310; Kevin White, "Individuation in Aquinas's *Super Boetium De Trinitate*, Q.4" *American Catholic Philosophical Quarterly* 69 (1995): 543-556; and Christopher Hughes, "Matter and Individuation in Aquinas," *History of Philosophy Quarterly* 13 (1996): 1-16.

[35] Wippel, The Metaphysical Thought of Thomas Aquinas, p. 360.

[36] *In DT*, q. 4 a. 2 co.

[37] Ibid.: "Non enim forma individuatur per hoc quod recipitur in materia, nisi quatenus recipitur in hac materia distincta et determinata ad hic et nunc."

[38] Ibid.: "[Materia] est principium diversitatis secundum genus, prout subest formae communi, ita est principium diversitatis secundum numerum, prout subest dimensionibus interminatis. Et ideo cum hae dimensiones sint de genere accidentium, quandoque diversitas secundum numerum reducitur in diversitatem materiae, quandoque in diversitatem accidentis."

To summarize then, two individuals of the same kind, say two oak trees, are informed by the substantial form that defines their kind, the substantial form of oak tree, making them oak trees. However, they are constituted as individual oak trees by the distinct prime matter that gives each of them the capacity to occupy a place and to possess extension in three dimensions. Since prime matter cannot exist apart from form, properly speaking, it is their prime matter under determinate dimensions (*dimensiones determinatae vel terminatae*) or dimensive quantities (*quantitates dimensivae*) that truly distinguishes one individual from another. It is this oak tree's prime matter, with this particular shape, height, and color, that truly distinguishes it from the second oak tree, with its own distinctive prime matter with its particular shape, height, and color.

To conclude, for St. Thomas, prime matter is the metaphysical co-principle that specifies the potencies of a particular existing thing. It is also the principle of individuation that distinguishes one individual thing from another individual of the same natural kind.

The Thomistic Theory of Substantial Form

If prime matter is the metaphysical principle that specifies the potency inherent in an existing thing, then substantial form is the correlative metaphysical principle that specifies the actuality of that thing. It is form that makes a thing of a natural kind, what it is. More specifically, substantial form is the principle that explains the determination, the nature, the operation, and the unity of a composite thing. It is also the principle that specifies the end of a thing of a natural kind, the principle that makes a thing tend by nature towards its perfection.

First, substantial form is the principle of actuality. As we noted above, according to St. Thomas, prime matter as pure potency does not and cannot exist by itself. It is substantial form that actualizes prime matter's potency, determining it so that both matter and form together can

constitute a substance. It does this by giving prime matter the determination that makes it the proper subject for the reception of the act of existing: "It is proper to a substantial form to give to matter its act of existing simply for it is that through which a thing is the very thing that it is."[39] Or again, "For through form, which is the act of matter, matter becomes an actual being and this particular thing."[40] Indeed, it is substantial form that gives matter its very act of being, i.e., its *esse*, making the composite exist as a particular kind of thing: "For we find that the relationship of form and matter is such that form gives *esse* to matter."[41]

Next, substantial form is the principle of the essence of a thing of a natural kind. It gives a thing of a natural kind its specific nature. According to St. Thomas, in corporeal things, substantial form determines its essence, while in spiritual things, substantial form is identical with its essence: "In this case, the essence of a composite substance differs from that of a simple substance because the essence of a composite substance is not only form but comprises both form and matter. In contrast, the essence of a simple substance is form alone."[42] Or again, "But the form is either the very nature of the thing, as in simple things or it is the constituent of the nature of the thing as in those things composed of matter and form."[43] Thus, properly speaking,

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[39] *DA,* q.9 co: "Est autem hoc proprium formae substantialis quod det materiae esse simpliciter; ipsa enim est per quam res est hoc ipsum quod est."

[40] *De ente*, cap. 1: "Per formam enim, quae est actus materiae, materia efficitur ens actu et hoc aliquid."

[41] *De ente*, cap. 3: "Talis autem invenitur habitudo materiae et formae, quia forma dat esse materiae." For discussion see, John Wippel, *Metaphysical Themes in Thomas Aquinas II* (Washington, DC: The Catholic University of America Press, 2007), pp. 172-193; and Cornelio Fabro, *Participation et causalite selon S. Thomas d'Aquin* (Louvain-Paris: Publications Universitaires de Louvain,1961), pp. 349-362.

[42] *De ente*, cap. 3: "In hoc ergo differt essentia substantiae compositae et substantiae simplicis quod essentia substantiae compositae non est tantum forma, sed complectitur formam et materiam, essentia autem substantiae simplicis est forma tantum."

[43] *STh* III.13.1: "Forma autem vel est ipsa natura rei, sicut in simplicibus, vel est constituens ipsam rei naturam, sicut in his quae sunt composita ex materia et forma."

the human being is not his substantial form alone, a form that is more properly called his soul. Rather, because he is a composite of matter and form, i.e., prime matter and soul, both have to be included in the definition of his essence, which is his humanity.

Third, substantial form is the principle of operation for a thing of a natural kind. In other words, since the form makes a thing of a natural kind what it is, it is also the form that gives a thing the powers that it has as a particular kind of thing. According to St. Thomas, "since the same form that gives *esse* to matter is also a principle of operation, for everything acts insofar as it is in act, it is necessary that a soul, just like any other form, is a principle of operation."[44] Thus, according to the Angelic Doctor, an eagle is able to fly, and a lion is able to roar because of their respective substantial forms that make them the animals that they are. Notably, St. Thomas explains that different kinds of forms confer different powers of operation to things, where higher forms, because of their perfection, will be able to confer greater powers of operating on things: "But we must consider that corresponding to levels of forms in the order of perfection of being, there are levels of form with respect to their power of operating, for an operation is an act of an agent in act."[45] These powers of operations are assigned to different parts in a more complex thing: "Indeed, in living bodies that have nobler forms, diverse operations are assigned to diverse parts. In plants there is an operation for the root, another for the branches, and

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[44] *DA*, q. 9 co: "Sed quia eadem forma quae dat esse materiae est etiam operationis principium, eo quod unumquodque agit secundum quod est actu; necesse est quod anima, sicut et quaelibet alia forma, sit etiam operationis principium."
[45] *DA*, q. 9 co: "Sed considerandum est quod secundum gradum formarum in perfectione essendi est etiam gradus earum in virtute operandi, cum operatio sit existentis in actu."

another for the trunk. And the more perfect the living bodies are, the greater is the diversity of parts found in them because of their greater perfection."[46]

Fourth, substantial form is the principle of unity that explains both the oneness and the wholeness of a thing of a natural kind. For St. Thomas, a substance has a unity that makes it one unqualifiedly (*unum simpliciter*) distinguishing it from an accidental aggregate of parts. This substantial unity is especially evident in living organisms: "Since the body of a human being or of any other animal is a natural whole, it will be called one because it has one form which perfects it in a manner unlike that of the aggregation or of the composition that is seen in a house or in other things of this kind."[47] For St. Thomas, form explains the unity of the substantial whole: "Nothing is absolutely one except by one form, by which a thing has existence, because a thing has existence and unity from the same source."[48] Or again, "for each individual thing is one in so far as it is a being. And each individual thing is an actual being through a form, whether according to substantial being or according to accidental being. Thus, every form is an act and as such it is the reason for the unity whereby a thing is one."[49] In other words, for St. Thomas, a thing of a natural kind is a single unified whole precisely because its substantial form with its

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[46] Ibid.: "In corporibus vero animatis quae habent nobiliores formas, diversis operationibus deputantur diversae partes; sicut in plantis alia est operatio radicis, alia rami et stipitis. Et quanto corpora animata fuerint perfectiora, tanto propter maiorem perfectionem necesse est inveniri maiorem diversitatem in partibus."

[47] *DA*, q. 10 co: "Cum enim corpus hominis, aut cuiuslibet alterius animalis, sit quoddam totum naturale, dicetur unum ex eo quod unam formam habeat qua perficitur non solum secundum aggregationem aut compositionem, ut accidit in domo, et in aliis huiusmodi."

[48] *STh* I.76.3: "Nihil enim est simpliciter unum nisi per formam unam, per quam habet res esse, ab eodem enim habet res quod sit ens et quod sit una."

[49] *De spirit. creat.* a. 3: "Unumquodque enim secundum hoc est unum, secundum quod est ens. Est autem unumquodque ens actu per formam, sive secundum esse substantiale, sive secundum esse accidentale: unde omnis forma est actus; et per consequens est ratio unitatis, qua aliquid est unum."

single act of existing unifies its parts by giving these parts the same act of existing. Being and oneness are convertible.

Finally, substantial form is the metaphysical principle of finality that explains the directedness, the teleology, of things. As St. Thomas explains in his commentary on Aristotle's *De Anima*, the soul is the final cause of the body: "In the same way that the intellect acts on account of an end, nature does as well, as was shown in the second book of the *Physics*. But the intellect in those things that are done by art, orders and disposes matter on account of a form. So also does nature. Therefore, if the soul is the form of the living body, it follows that it too must be its end."[50] Or again, "a soul is not only the form and mover of the body, but also its end."[51] In other words, by making a thing a particular kind of thing of a natural kind, a substantial form makes it a particular kind of thing that is perfected in a particular way. Therefore, it is the soul of the eagle, making it an eagle, which gives the eagle its species-specific powers that allow it to fly, to see keenly, and to eat meat, so that it may survive and thrive.

Three significant metaphysical claims follow from the Thomistic proposition that the substantial form is the principle of actuality, nature, operation, unity and directedness of a thing of a natural kind. The first deals with the question of whether a thing of a natural kind has one or many substantial forms, the second answers queries regarding the location of a substantial form within a thing of a natural kind that has multiple parts, while the third gives primacy to substantial form over prime matter in the context of the composite. A contemporary re-articulation of St. Thomas's hylomorphic theory like the systems hylomorphic account that will

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[50] *In DA*, II Lect 7, no. 13: "Sicut enim intellectus operatur propter finem, ita et natura, ut probatur in secundo physicorum. Sed intellectus in his quae fiunt per artem, materiam ordinat et disponit propter formam: ergo et natura. Cum igitur anima sit forma viventis corporis, sequitur quod sit finis eius."
[51] *DA*, q. 8 co: "Anima non solum est corporis forma et motor, sed etiam finis."

be described in Chapter Six, would have to explain and to take these into account if it is to be faithful to the Thomistic tradition.

First, according to St. Thomas, a thing of a natural kind has a single substantial form. In contrast to many of his Aristotelian contemporaries, who had argued for a plurality of substantial forms in a substance to account for the different levels of perfection present in complex beings like human beings[52], the Angelic Doctor countered by noting that *by definition*, a single thing of a natural kind can only have a single substantial form. Any other form, again by definition, would have to be an accidental form:

> That it is impossible for there to be several souls in one body is proved as follows…[I]f several substantial forms belong to one and the same thing, either the first of them causes it to be this particular thing or it does not. If it does not, the form is not substantial; if it does, then all the subsequent forms accumulate to what is already this particular thing. Therefore none of the subsequent forms will be a substantial but only an accidental form.[53]

Moreover, according to St. Thomas, a plurality of substantial forms would undermine the fundamental integrity of a thing of a natural kind, because two substantial forms cannot combine with one another to constitute a being that is integrally one:

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[52] For a historical discussion of the debate over the numerical nature of substantial form in a substance, see Daniel A. Callus, O.P., "The Origins of the Problem of the Unity of Form," *The Thomist* 24 (1961): 257–85; Emily Michael, "Averroes and the Plurality of Forms," *Franciscan Studies* 52 (1992): 155–83; and Sander W. De Boer, *The Science of the Soul: The Commentary Tradition on Aristotle's* De Anima, c. 1260-c.1360 (Leuven: Leuven University Press, 2013), pp. 36-43.

[53] *CT,* no. 90: "Quod autem impossibile sit esse plures animas in uno corpore, sic probatur…Si igitur plures formae substantiales sint unius et eiusdem rei, aut prima earum facit hoc aliquid, aut non. Si non facit hoc aliquid, non est forma substantialis. Si autem facit hoc aliquid, ergo omnes formae consequentes adveniunt ei quod iam est hoc aliquid. Nulla igitur consequentium erit forma substantialis, sed accidentalis." Cf. *DA*, no. 9.

In the first place, an animal would not be absolutely one, in which there were

several souls. For nothing is absolutely one except by one form, by which a thing

has existence because a thing has existence and unity from the same source.

Therefore things which are distinguished by various forms are not absolutely one;

as, for instance, "a white man." If, therefore, a human being alive by one form,

namely the vegetative soul, and animal-like by another form, namely the sensitive

soul, and human by another form, namely the intellectual soul, it would follow

that a human being would not be absolutely one.[54]

Importantly, however, St. Thomas also taught that higher forms, precisely because they are

higher, and therefore more perfect, are able to contain the perfections found in lower forms:

There is no other substantial form in the human being other than the intellectual

soul; and that the soul, as it virtually contains the sensitive and nutritive souls, so

does it virtually contain all inferior forms, and itself alone does whatever the

imperfect forms do in other things. The same is to be said of the sensitive soul in

brute animals, and of the nutritive soul in plants, and universally of all more

perfect forms with regard to the imperfect.[55]

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[54] *STh* I.76.3: "Primo quidem, quia animal non esset simpliciter unum, cuius essent animae plures. Nihil enim est simpliciter unum nisi per formam unam, per quam habet res esse, ab eodem enim habet res quod sit ens et quod sit una; et ideo ea quae denominantur a diversis formis, non sunt unum simpliciter, sicut homo albus. Si igitur homo ab alia forma haberet quod sit vivum, scilicet ab anima vegetabili; et ab alia forma quod sit animal, scilicet ab anima sensibili; et ab alia quod sit homo, scilicet ab anima rationali; sequeretur quod homo non esset unum simpliciter."

[55] *STh* I.76.4: "Nulla alia forma substantialis est in homine, nisi sola anima intellectiva; et quod ipsa, sicut virtute continet animam sensitivam et nutritivam, ita virtute continet omnes inferiores formas, et facit ipsa sola quidquid imperfectiores formae in aliis faciunt. Et similiter est dicendum de anima sensitiva in brutis, et de nutritiva in plantis, et universaliter de omnibus formis perfectioribus respectu imperfectiorum."

In other words, for the Angelic Doctor, the lower forms are present only virtually, i.e., by virtue of their power, and not actually, in the higher form.[56] Thus, the original powers or qualities of the lower forms come to exist in some way in the higher form so that, for example, the single intellectual soul that is the substantial form of a human being, also has the powers found in the animal, vegetative, and elemental forms that it perfects.

Second, according to St. Thomas, a substantial form is fully and actually present not only in the whole but also in every part of the whole. This follows from his definition of the substantial form as the principle of existence that gives actuality to a thing of a natural kind and perfects it:

> Now the substantial form perfects not only the whole, but also each part. For since
> a whole consists of parts, a form of the whole which does not give existence to
> each of the parts of the body, is a form consisting in composition and order, such
> as the form of a house; and such a form is accidental. But the soul is a substantial
> form; and therefore it must be the form and the act, not only of the whole, but also
> of each part.[57]

Moreover, in St. Thomas's view, the substantial form is fully present in every part of the substance. This is because the substantial form, or in the case of a living thing, the soul, *qua* form, does not have quantity: "Since, however, the soul has not quantitative totality, neither essentially, nor accidentally, as we have said, it suffices to say that the whole soul is in each part of the

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[56] For discussion of St. Thomas's doctrine of virtual presence, see Christopher Decaen, "Elemental Virtual Presence in St. Thomas," *The Thomist* 64 (2000): 271-300.

[57] *STh* I.76.8: "Substantialis autem forma non solum est perfectio totius, sed cuiuslibet partis. Cum enim totum consistat ex partibus, forma totius quae non dat esse singulis partibus corporis, est forma quae est compositio et ordo, sicut forma domus, et talis forma est accidentalis. Anima vero est forma substantialis, unde oportet quod sit forma et actus non solum totius, sed cuiuslibet partis."

body."[58] The Angelic Doctor, however, makes a further distinction that a substantial form is present fully in each part of the body, by totality of perfection and essence, but not of power: "[I]t is enough to say that the whole soul is in each part of the body, by totality of perfection and of essence, but not by totality of power. For it is not in each part of the body, with regard to each of its powers; but with regard to sight, it is in the eye; with regard to hearing, it is in the ear; and so forth."[59] In other words, the soul is fully present in every part of the body precisely because it is the principle of actuality that makes that part of the body, a part of the body, but the soul's specific powers can only manifest in and through those parts that are ordered towards the manifestation of those powers.

Finally, in the context of the composite, substantial form has primacy over prime matter in the order of perfection. As I explained above, for St. Thomas, substantial form is the principle that gives actuality to prime matter thus constituting the substance as a particular thing of a natural kind. This is only possible because prime matter exists for the form, and not vice versa: "The union of soul and body is for the sake of the soul and not for the body, for the form is not for the matter, but the other way around."[60] Or again: "Since the form is not for the matter, but rather the matter for the form, it must be that matter is what it is from the form and not the other way around."[61] Because of this, according to St. Thomas, all substantial forms, other than the

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[58] *STh* I.76.8: "Sed quia anima totalitatem quantitativam non habet, nec per se nec per accidens, ut dictum est; sufficit dicere quod anima tota est in qualibet parte corporis."

[59] Ibid: "Sufficit dicere quod anima tota est in qualibet parte corporis secundum totalitatem perfectionis et essentiae; non autem secundum totalitatem virtutis. Quia non secundum quamlibet suam potentiam est in qualibet parte corporis; sed secundum visum in oculo, secundum auditum in aure, et sic de aliis."

[60] *STh* I.70.3: "Unio animae et corporis non est propter corpus, sed propter animam, non enim forma est propter materiam, sed e converso."

[61] *STh* I.76.5: "Cum forma non sit propter materiam, sed potius materia propter formam; ex forma oportet rationem accipere quare materia sit talis, et non e converso."

rational soul, which can exist in itself,[62] pre-exist in prime matter in potentiality. They are there in potentiality because matter is ordered towards them. However, properly speaking, substantial forms are not created *per se*, but come to be when the composite substance is created and comes to be:

> The form of the natural body is not subsisting, but is that by which a thing is. Therefore, since to be made and to be created belong properly only to a subsisting thing alone, as shown above, it does not belong to forms to be made or to be created, but to be concreated.[63]

Significantly, however, all composites of matter and form, other than the incorruptible heavenly bodies, retain their potentiality to other forms: "For in things that are corruptible, the form does not perfectly complete the potentiality of the matter because the potentiality of the matter extends to more things than are contained under this or that form."[64] A substantial change occurs when the potentiality of the prime matter constituting a particular composite is altered by an agent cause in such a way that its potentiality towards a novel form is greater than its potentiality to its current one. At this point the novel form to which prime matter is now more predisposed is educed from it so that a new composite, a new substance, comes into being. It is a process that involves both generation and corruption. As an example, St. Thomas notes that the intellectual soul has to be united to a body that is predisposed to it and the manifestation of its powers, in this case, its sensitive powers. In fact, according to the Angelic Doctor, the difference in

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[62] *STh* I.90.2 ad 2.

[63] *STh* I.45.8: "Forma naturalis corporis non est subsistens, sed quo aliquid est, et ideo, cum fieri et creari non conveniat proprie nisi rei subsistenti, sicut supra dictum est, formarum non est fieri neque creari, sed concreata esse."

[64] *STh* I.55.1: "Et inde est quod in rebus corruptibilibus forma non perfecte complet potentiam materiae, quia potentia materiae ad plura se extendit quam sit continentia formae huius vel illius."

intellectual ability among different individuals can be attributed to the predisposition of matter to form where more intelligent individuals are intelligent because their matter is better disposed to an intellectual soul:

> For it is clear that the better the disposition of a body, the better the soul allotted to it, which clearly appears in things of different species. The reason is that act and form are received into matter according to the matter's capacity. Thus because some men have bodies of better disposition, their allotted souls have a greater power of understanding.[65]

Thus, the intellectual soul cannot be united to a more imperfect body or a body that is not fitting for its end:

> An intellectual soul does not need a body by reason of its intellectual operation considered as such but on account of its sensitive power, which requires an organ of unflappable temperament. Therefore the intellectual soul had to be united to such a body, and not to a simple element, or to a mixed body in which fire was in excess. Otherwise there could not be an unflappability of temperament.[66]

This mechanism of predisposition and subsequent eduction of form explains all substantial change except for the substantial change involving the subsistent rational soul:

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[65] *STh* I.85.7: "Manifestum est enim quod quanto corpus est melius dispositum, tanto meliorem sortitur animam, quod manifeste apparet in his quae sunt secundum speciem diversa. Cuius ratio est, quia actus et forma recipitur in materia secundum materiae capacitatem. Unde cum etiam in hominibus quidam habeant corpus melius dispositum, sortiuntur animam maioris virtutis in intelligendo."

[66] *STh* I.76.5 ad 2: "Animae intellectivae non debetur corpus propter ipsam intellectualem operationem secundum se; sed propter sensitivam virtutem, quae requirit organum aequaliter complexionatum. Et ideo oportuit animam intellectivam tali corpori uniri, et non simplici elemento, vel corpori mixto in quo excederet ignis secundum quantitatem, quia non posset esse aequalitas complexionis."

The production of act from the potency of matter is nothing else but something becoming actually that previously was in potency. But since the rational soul does not depend in its existence on corporeal matter, and is subsistent, and exceeds the capacity of corporeal matter, as we have seen, it is not educed from the potency of matter.[67]

In the end, the possibility of substantial change can be explained by prime matter's inherent openness to a potentially infinite number of substantial forms.

To conclude, it is important to emphasize that for St. Thomas, substantial form, like prime matter, is not perceivable by the senses. One can only see the accidental qualities that inhere to a particular substantial form. As such, one cannot actual directly observe a substantial change. Rather, one can only see the accidental changes that gradually alter the predisposition of prime matter so that it is now predisposed to a novel substantial form. Thus, it is not surprising that according to the Angelic Doctor, accidental differences are commonly used to indicate substantial differences: "Since substantial forms, which in themselves are unknown to us, are known by their accidents; nothing prevents us from sometimes substituting accidental for substantial differences."[68] Substantial forms forever remain hidden from sight veiled by the reality of accidental forms.

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[67] *STh* I.90.2 ad 2: "Actum extrahi de potentia materiae, nihil aliud est quam aliquid fieri actu, quod prius erat in potentia. Sed quia anima rationalis non habet esse suum dependens a materia corporali, sed habet esse subsistens, et excedit capacitatem materiae corporalis, ut supra dictum est; propterea non educitur de potentia materiae."

[68] *STh* I.77.1 ad 7: "Quia tamen formae substantiales, quae secundum se sunt nobis ignotae, innotescunt per accidentia; nihil prohibet interdum accidentia loco differentiarum substantialium poni."

A Classical Hylomorphic Account of the Human Agent

To see how St. Thomas most famously used matter and form language in his theological synthesis, I now move to his description of the human agent.[69] Significantly, this anthropological account is presupposed by the moral analysis later in this thesis, and we will return to it repeatedly in the course of this dissertation.

As an Aristotelian, St. Thomas thought that the human agent is best described as a living substance of prime matter and of substantial form, a body-soul composite. However, as he himself emphasized, "the theologian considers the nature of man in relation to the soul and not in relation to the body, except in so far as the body has a relationship to the soul."[70] In *sacra doctrina*, the soul has priority over the body.

As a substantial form, the human soul is the first act of the body making that body exist as a living body.[71] It is also the body's principle of motion.[72] In contrast to the other souls found in creation, the human soul is immaterial and subsistent, because it has *per se* operations of rationality that cannot be attributed to the body.[73] Essentially, it is the principle and cause of human nature. Since inclination follows from every form, the human soul is the basis for the

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[69] For a contemporary commentary on St. Thomas's philosophical anthropology, see Robert Pasnau, *Thomas Aquinas on Human Nature* (Cambridge: Cambridge University Press, 2002). However, I do not think that Pasnau correctly understands St. Thomas's doctrine at the beginning of life. For a correction, see John Haldane and Patrick Lee, "Rational Souls and the Beginning of Life (A Reply to Robert Pasnau)," *Philosophy* 4 (2003): 532-540; and Pasnau's reply: "Souls and the Beginning of Life (A Reply to Haldane and Lee)," *Philosophy* 78 (2003): 521-531.

[70] *STh* I.75 (Prologue): "Naturam autem hominis considerare pertinet ad theologum ex parte animae, non autem ex parte corporis, nisi secundum habitudinem quam habet corpus ad animam."

[71] *STh* I.75.1.

[72] *STh* I.75.1 ad 1.

[73] *STh* I.75.2.

natural inclinations in the human organism, which St. Thomas had begun to identify.[74] These inclinations are constitutive of human nature. We will discuss these inclinations in greater detail in the next chapter.

The human soul has five basic powers, where each power is a potency in the soul to some perfection of the form. Each power is defined either by an object, which is that reality that reduces the power from potency to act in the same way that color moves the power of sight to its act, or by a term or an end, which is the reality to which the power moves, depending upon whether it is a passive or an active power, respectively.[75] Or to put it another way, a soul's powers have a connatural teleological ordering towards either their objects or their ends.[76]

Most fundamentally, the rational soul has vegetative powers ordered towards its secondary matter, which is the human body itself. These are the powers responsible for the organism's biological capacities to nourish itself, to grow, and to reproduce.[77] These are powers the rational soul has in common with the souls of all living things.

Next, the rational soul has a sense powers ordered toward the sensibles, five exterior senses actualized by those sensibles like color, sound, odor, flavor, and tangibility that allow the human organism to perceive his surroundings[78], and five interior senses actualized by integrated sense data, by particular forms, by memories, by phantasms, and by non-sensible intentions that indicate if the sensible object is good or evil for the person. Of particular importance for this dissertation is the cogitative sense in human beings whereby the human agent is able to perceive

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[74] *STh* I-II.94.2.
[75] *STh* I.78.1.
[76] *STh* I.77.3.
[77] *STh* I.78.2.
[78] *STh* I.78.3.

individual things precisely as individual particulars at the level of sense cognition. We will return to the cogitative sense in greater detail in Chapter Three.

Third, the rational soul has a locomotive power ordered to the term of the body's operation and movement. This is the power that allows a man to move his body not only in place but also from one place to another. These sense and locomotive powers are shared with the souls of the other animals.

Fourth, the rational soul has appetitive powers that move the organism towards realities that it apprehends as desirable.[79] These are natural inclinations that follow from knowledge, and as such, they are superior to the natural inclinations that follow from all natural forms.[80] For St. Thomas, there are three distinct appetites in the rational creature.[81] First, there is the intellective appetite, also called the will (*voluntas*), that moves the human organism towards intelligible goods and away from intelligible evils.[82] We will consider this power in greater detail in Chapter Two when we will describe the two acts of the will that constitute and specify the human act. Next, the concupiscible appetite moves him towards the beneficial and away from the harmful simply, while the irascible appetite moves him towards the beneficial that is hard to attain and away from the harmful that is hard to avoid.[83] Importantly, these latter two powers are appetites associated with sensible goods, i.e., particular things perceived as concrete instances of goodness, and as such are shared with the brute animals who are instinctively attracted to and repelled by different things. They will figure prominently in our discussion of the passions in Chapter Three.

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[79] *STh* I.80.1.
[80] *STh* I.80.1.
[81] *STh* I.80.2.
[82] *STh* I.82.1-2.
[83] *STh* I.81.2.

Lastly, the rational soul has powers of intellectual cognition, composed of the active and the passive intellects, that are ordered towards universal and conceptual knowledge.[84] The active intellect abstracts intelligible species from the phantasm derived from sense knowledge. This intelligible species is then imposed on the passive intellect to form a concept that is the formal sign of the nature grasped by the intellect.

In sum, these five categories of powers together as a whole distinguish the rational soul from all the other kinds of souls in creation. This is especially true because the rationality of the human agent pervades all of his other lower powers, ordering them to his proper end.[85] However, as St. Thomas explains, the intellective and the appetitive powers are of particular interest to the moral theologian because of their link to the virtues: "Next we consider the powers of the soul specifically. The theologian, however, has only to inquire specifically concerning the intellectual and appetitive powers, in which the virtues reside."[86] In contrast, the nutritive, locomotive, and sense powers cannot be the subject of virtue.[87] Therefore, they will only play an ancillary role in this dissertation on moral theology.

The Analogous Use of Hylomorphic Theory in Thomistic Moral Theology

Finally, we now turn to St. Thomas's analogical use of matter-form terminology in his moral theology, in greater detail. To illustrate what I see as the fundamental hylomorphic

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[84] *STh* I.79.1.

[85] *STh* I-II.24.1 ad 2. As we will discuss in greater detail in Chapter Three, where the brute animal has an estimative sense that apprehends the beneficial and harmful character of things they perceive, by instinct, the rational animal has a cogitative sense that apprehends particular intentions, by instinctual reason. Cf. *STh* I-II.78.4.

[86] *STh* I.78 (Prologue): "Deinde considerandum est de potentiis animae in speciali. Ad considerationem autem theologi pertinet inquirere specialiter solum de potentiis intellectivis et appetitivis, in quibus virtutes inveniuntur."

[87] Cf. *STh* I-II.56.5.

architecture of Thomistic moral theology, I describe five instances of this leitmotif taken from the major treatises that comprise the *Prima secundae*, with specific examples taken from the *Secunda secundae*, when they are available. Four of these will be discussed in greater detail later in four individual chapters of this thesis.

Before we begin this analysis, however, we need to deal with two preliminary topics. First, it is important to sketch St. Thomas's rich doctrine of analogy and analogical predication to set the backdrop for the narrative that follows.[88] For the Angelic Doctor, analogical predication, where two different but related meanings are predicated of two subjects, sits midway between equivocal predication, where different and unrelated meanings of a term are predicated of two things, and univocal predication, where one distinct meaning of a term is predicated of two realities:

> [Analogical predication] is a mean between pure equivocation and simple univocation. For in analogies the idea is not one and the same as it is in univocals, nor is not totally diverse as in equivocals. Rather the name that is thus used in a multiple sense signifies various proportions to some one thing. Thus "healthy" applied to urine signifies the sign of animal health but applied to medicine signifies the cause of the same health.[89]

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[88] The scholarly literature investigating St. Thomas's use of analogy and analogical predication is large. The most important contributions from recent years include the following: David Burrell, C.S.C, *Analogy and Philosophical Language* (New Have: Yale University Press, 1973); Ralph McInerny, *Aquinas and Analogy*, (Washington, D.C.: The Catholic University of America Press, 1998); Gregory P. Rocca, O.P., *Speaking the Incomprehensible God* (Washington, D.C.: The Catholic University of America Press, 2004); and Steven A. Long, *Analogia Entis: On the Analogy of Being, Metaphysics, and the Act of Faith* (Notre Dame: University of Notre Dame, 2011). My discussion of analogical predication that follows is heavily indebted to these monographs.

[89] *STh* I.13.5: "Et iste modus communitatis medius est inter puram aequivocationem et simplicem univocationem. Neque enim in his quae analogice dicuntur, est una ratio, sicut est in univocis;

Note that in this view, all analogical predication occurs according to and because of a relation that refers back to a single reality. For example, citing the health example used above, St. Thomas says that one can speak of the "health" either of medicine or of urine only because of the relation of medicine and urine to the health of the patient:

> But when a thing is derived from one thing from another, according to analogy or proportion, then it is one in both as the health that is in medicine or urine is derived from the health of the animal's body, for health as it is applied to medicine and to urine is not distinct from health as it is applied to the health of an animal, which medicine causes and urine indicates.[90]

As Gregory Rocca, explains, "the various meanings of an analogical term are one insofar as the different relations signified are referred 'to something one and the same'."[91] The primary reality or prime analogate, the "one and the same" to which the analogical predication refers back to – which in the case cited above is the health of the animal – receives the primary signification of the analogical term. The secondary realities receive their significations because of some relationship they have to the prime analogate.

Next, before moving to St. Thomas's theology in the *Secunda pars* proper, I also think that it is crucial that we examine the use of hylomorphic language in his discussion of good and evil in the *Prima pars*, as this is presupposed in the moral analysis that comes later in the *Summa*.

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nec totaliter diversa, sicut in aequivocis; sed nomen quod sic multipliciter dicitur, significat diversas proportiones ad aliquid unum; sicut sanum, de urina dictum, significat signum sanitatis animalis, de medicina vero dictum, significat causam eiusdem sanitatis." Also, *STh* I.13.10.

[90] *STh* I-II.20.3 ad 3: "Sed quando aliquid derivatur ab uno in alterum secundum analogiam vel proportionem, tunc est tantum unum numero, sicut a sano quod est in corpore animalis, derivatur sanum ad medicinam et urinam; nec alia sanitas est medicinae et urinae, quam sanitas animalis, quam medicina facit, et urina significat."

[91] Rocca, *Speaking the Incomprehensible God*, p. 140.

Like Aristotle and many of the other ancients, the Angelic Doctor begins his discussion of the distinction between good and evil by defining good as that which is appetible, i.e., that which is desirable.[92] Thus, he will conclude that the perfection of any nature is good, "since every nature desires its own being and its own perfection."[93] Since good and evil are opposed, it follows then that, for St. Thomas, "by the name of evil is signified the absence of good."[94] Later, he makes the further distinction that not every absence of good is evil but only those in a privative and not in a negative sense.[95] Thus, the Angelic Doctor explains that a man would not experience evil if he is not as strong as a lion – which is the absence of something he would not have had by nature – but he would if he is blind – which is the absence of something that he should have had by nature.[96]

When he applies this ontological account of goodness and evil to the moral world, i.e., the realm of good and evil acts that are intentionally willed and performed by the agent cause, St. Thomas will teach the following:

> Good and evil are not constitutive differences except in morals, which receive their species from the end, which is the object of the will, upon which morality depends. And because good has the nature of an end, therefore good and evil are specific differences in moral things; good in itself, but evil as the absence of a fitting end.[97]

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[92] *STh* I.48.1.

[93] Ibid.: "Omnis natura appetat suum esse et suam perfectionem."

[94] Ibid.: "Quod nomine mali significetur quaedam absentia boni."

[95] *STh* I.48.3

[96] Ibid.

[97] *STh* I.48.1 ad 2: "Bonum et malum non sunt differentiae constitutivae nisi in moralibus, quae recipiunt speciem ex fine, qui est obiectum voluntatis, a qua moralia dependent. Et quia bonum

For the Angelic Doctor, the morality of an act is determined by the object of the will, where a good will is rightly ordered towards a due end in accord with reason, and an evil will is wrongly ordered towards an undue end that by definition falls short of that which is truly perfective of the will: "But in voluntary things, the defect of the act proceeds from an actually deficient will, inasmuch as it does not actually subject itself to its proper rule. However, this defect is not a fault, but fault follows when the will acts with this defect."[98] In more metaphysical terms, St. Thomas will explain that an agent commits an evil act when he chooses one form that necessarily leads to the privation of a proper and due form:

> Evil is caused in a thing, but not in the proper effect of the agent, sometimes by
>
> the power of the agent, sometimes by reason of a defect either in the agent or in
>
> the matter. It is caused by reason of the power or perfection of the agent when
>
> there follows on the form intended by the agent, the necessary privation of
>
> another form.[99]

In summary, good acts are those acts willingly intended by the agent to cause a proper form to come to be, while evil acts are those acts willingly intended by the agent to cause a form to come to be that leads to the privation of a proper form in a thing, where a proper form is that form that perfects that thing's nature.

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habet rationem finis, ideo bonum et malum sunt differentiae specificae in moralibus; bonum per se, sed malum inquantum est remotio debiti finis."

[98] *STh* I.49.1 ad 3: "Sed in rebus voluntariis, defectus actionis a voluntate actu deficiente procedit, inquantum non subiicit se actu suae regulae. Qui tamen defectus non est culpa, sed sequitur culpa ex hoc quod cum tali defectu operatur."

[99] *STh* I.49.1: "Malum autem in re aliqua, non tamen in proprio effectu agentis, causatur quandoque ex virtute agentis; quandoque autem ex defectu ipsius, vel materiae. Ex virtute quidem vel perfectione agentis, quando ad formam intentam ab agente sequitur ex necessitate alterius formae privatio."

Returning to the hylomorphism of St. Thomas's theological framework in the *Prima secundae* of his *Summa theologiae*, he makes analogical use of matter-form terminology to describe the structure of at least five realities in his fundamental moral theology, the human act, human passion, human virtue, human sin, and grace. As we have seen, St. Thomas describes these realities by drawing upon his analysis of prime matter and substantial form, which as we saw above, come together to form a composite substance. In my view, the guiding principle for the Angelic Doctor's analogical use of hylomorphic terminology is succinctly summarized in his observation that "whenever two things concur to constitute one thing, one of them is formal in regard to the other."[100] Therefore, as we will see shortly, it is not surprising that the five realities in fundamental moral theology described with analogical reference to prime matter and substantial are realities composed of two more fundamental realities that can come together to make up a whole.

First, St. Thomas uses hylomorphic language to describe the structure of the human act. He deploys matter-form terminology here in several ways. For instance, he describes the relationship between acts of will and acts of intellect in the context of a human action, in hylomorphic terms: "That act whereby the will tends to something proposed to it as being good, through being ordained to the end by the reason, is materially an act of the will, but formally an act of the reason."[101] Elsewhere, St. Thomas describes the relationship between the end, which is the object of the interior act of the will, and the object, which is the object of the exterior act commanded by the will, as one analogous to form and matter:

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[100] *STh* I-II.13.1: "Quandocumque autem duo concurrunt ad aliquid unum constituendum, unum eorum est ut formale respectu alterius."

[101] Ibid.: "Sic igitur ille actus quo voluntas tendit in aliquid quod proponitur ut bonum, ex eo quod per rationem est ordinatum ad finem, materialiter quidem est voluntatis, formaliter autem rationis."

Now that which is on the part of the will is formal in regard to that which is on the

part of the external action because the will uses the limbs to act as instruments.

External actions do not have any measure of morality except in so far as they are

voluntary. Consequently the species of a human act is considered formally with

regard to the end, but materially with regard to the object of the external action.[102]

As we will see in greater detail in Chapter Two, recognizing the hylomorphic structure of the

human act can illuminate and advance the current debate over the proper specification of a

human act.

Next, the Angelic Doctor compares the structure of human passions to matter-form

composites. For St. Thomas, a passion is "a movement of an appetitive power that has a bodily

organ, such movement being accompanied by a bodily transmutation."[103] He will then describe

the relationship between the movement of the appetite and the change in the body, in this case

with reference to the effects of the passion of love, as one analogous to form and matter:

And this is said of love in respect of its formal element, which is on the part of the

appetite. But in respect of the material element in the passion of love, which is a

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[102] *STh* I-II.18.6.: "Ita autem quod est ex parte voluntatis, se habet ut formale ad id quod est ex parte exterioris actus, quia voluntas utitur membris ad agendum, sicut instrumentis; neque actus exteriores habent rationem moralitatis, nisi inquantum sunt voluntarii. Et ideo actus humani species formaliter consideratur secundum finem, materialiter autem secundum obiectum exterioris actus."

[103] *STh* I-II.41.1: "magis proprie, motus appetitivae virtutis habentis organum corporale, qui fit cum aliqua transmutatione corporali." For recent discussions on the passions/emotions in St. Thomas Aquinas, see Robert Miner, *Thomas Aquinas on the Passions* (Cambridge: Cambridge University Press, 2009); Diana Fritz Cates, *Aquinas on the Emotions: A Religious-Ethical Inquiry* (Washington, D.C.: Georgetown University Press, 2009); and Nicholas E. Lombardo, O.P., *The Logic of Desire: Aquinas on the Passions* (Washington, D.C.: The Catholic University of America Press, 2011).

certain bodily change, it happens that love is hurtful because this change being

excessive.[104]

He uses the same analogy in his characterization of the effect of the passion of anger on the

acting subject:

> The beginning of anger is in the reason, as regards the appetitive movement,
>
> which is the formal element of anger. But the passion of anger distracts from the
>
> perfect judgment of reason as though it listened imperfectly to reason, on account
>
> of the commotion of the heat impelling it to instant action, which is the material
>
> element of anger.[105]

St. Thomas also explicitly uses hylomorphic terminology to describe the proper relationship

between the bodily change and the appetitive movement, which together constitute a passion:

> In all the passions of the soul, the bodily transmutation which is their material
>
> element is in conformity with and in proportion to the appetitive movement,
>
> which is the formal element, just as in all things matter is proportionate to form.[106]

For the Angelic Doctor, analogously speaking, a human passion is a reality composed of formal

and material components. As we will see in Chapter Three, St. Thomas's hylomorphic theory of

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[104] *STh* I-II.28.5: "Et hoc quidem dictum sit de amore, quantum ad id quod est formale in ipso, quod est scilicet ex parte appetitus. Quantum vero ad id quod est materiale in passione amoris, quod est immutatio aliqua corporalis, accidit quod amor sit laesivus propter excessum immutationis."

[105] *STh* I-II.48.3 ad 1: "A ratione est principium irae, quantum ad motum appetitivum, qui est formalis in ira. Sed perfectum iudicium rationis passio irae praeoccupat quasi non perfecte rationem audiens, propter commotionem caloris velociter impellentis, quae est materialis in ira."

[106] *STh* I-II.37.4: "In omnibus animae passionibus, quod transmutatio corporalis, quae est in eis materialis, est conformis et proportionata motui appetitus, qui est formalis, sicut in omnibus materia proportionatur formae."

the passions still has much to contribute to contemporary debates on the nature of the emotions in ordinary life and in neuroscience.

Third, St. Thomas uses matter-form language to describe the architecture of human virtues and vices. For the Angelic Doctor, a virtue is an ordered disposition of the soul, an operative *habitus,* which disposes the agent to the production of good acts.[107] In numerous places, St. Thomas compares a *habitus* to a form.[108] More specifically, he compares a *habitus* to a quality or a form that adheres to a power inclining it to acts of a determinate species.[109] Thus, it should not be surprising that St. Thomas also posits the existence of a material principle in virtue:

> Now virtue has no matter "out of which," as neither has any other accident; but it has matter "about which," and matter "in which," namely, the subject. The matter "about which" is the object of virtue, though this could not be included in the above definition because the object assigns the virtue to a certain species, and here we are giving the definition of virtue in general. Therefore for material cause we have the subject, when it is said that a virtue is a good quality of the mind.[110]

As we will see in greater detail in Chapter Four, acknowledging the hylomorphic architecture of St. Thomas's account of virtue can ground a novel proposal for the ontological relationship between the infused intellectual virtue of faith and the acquired intellectual virtues of understanding, of sure knowledge, and of wisdom in the Christian living in the state of grace.

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[107] *STh* I-II.55.3.

[108] *STh* I-II.53.2; *STh* I-II.54.1; *STh* I-II.54.2; *STh* I-II.55.4.

[109] *STh* I-II.54.1.

[110] *STh* I-II.55.4: "Virtus autem non habet materiam ex qua, sicut nec alia accidentia, sed habet materiam circa quam; et materiam in qua, scilicet subiectum. Materia autem circa quam est obiectum virtutis; quod non potuit in praedicta definitione poni, eo quod per obiectum determinatur virtus ad speciem; hic autem assignatur definitio virtutis in communi. Unde ponitur subiectum loco causae materialis, cum dicitur quod est bona qualitas mentis."

Fourth, St. Thomas will use hylomorphic theory to explicate his understanding of sin. Following St. Augustine, for example, he includes two things in his definition of sin, first, the sinful deed, and second, the disordered will behind that sinful deed.[111] Significantly, however, the Angelic Doctor relates them to each other as matter and form, in a way that Augustine never did:

> Accordingly Augustine includes two things in the definition of sin; one, pertaining to the substance of a human act, which is the matter, so to speak, of sin, when he says "word," "deed," or "desire"; the other, pertaining to the nature of evil, which is the form, as it were, of sin, when he says, "contrary to the eternal law."[112]

This novel development will allow St. Thomas to "correct" and "improve upon" Augustine who sometimes defined sin in reference to the will alone, without any reference to the precise act of the sinner:

> The first cause of sin is in the will, which commands all voluntary acts, in which alone is sin to be found. Hence it is that Augustine sometimes defines sin in reference to the will alone. But since external acts also pertain to the substance of sin through being evil of themselves, as stated, it was necessary in defining sin to include something referring to external action.[113]

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[111] *STh* I-II.71.6.

[112] Ibid.: "Et ideo Augustinus in definitione peccati posuit duo, unum quod pertinet ad substantiam actus humani, quod est quasi materiale in peccato, cum dixit, dictum vel factum vel concupitum; aliud autem quod pertinet ad rationem mali, quod est quasi formale in peccato, cum dixit, contra legem aeternam."

[113] *STh* I-II.71.6 ad 2: "Prima causa peccati est in voluntate, quae imperat omnes actus voluntarios, in quibus solum invenitur peccatum, et ideo Augustinus quandoque per solam voluntatem definit peccatum. Sed quia etiam ipsi exteriores actus pertinent ad substantiam peccati, cum sint secundum se mali, ut dictum est, necesse fuit quod in definitione peccati poneretur etiam aliquid pertinens ad exteriores actus."

Later in the *Secunda secundae*, this distinction between the formal and material components of sin will allow St. Thomas to analyze those sinful acts that are not fully willed by the sinner who performs them. For instance, the Angelic Doctor will distinguish two different false statements that can be involved in perjury:

> If the false be apprehended as true, it will be materially false, but formally true, as related to the will. If something false be accepted as false, it will be false both materially and formally. If that which is true be apprehended as false, it will be materially true, and formally false. Hence in each of these cases the conditions required for perjury are to be found in some way, on account of some measure of falsehood. Since, however, that which is formal in each thing is of greater importance than that which is material, he that swears to a falsehood thinking it is true is not so much of a perjurer as he that swears to the truth thinking it is false.[114]

As we will see in greater detail in Chapter Five, acknowledging the hylomorphic architecture of St. Thomas's description of lies, which he defines as disordered, and as such, sinful, speech acts, in light of contemporary discoveries on the nature of primate vocalizations and of speech acts can explain and justify the common intuition that not all intentionally false speech acts constitute lies, properly so called.

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[114] *STh* II-II.98.1 ad 3: "Et ideo si falsum apprehendatur ut verum, erit quidem, relatum ad voluntatem, materialiter falsum, formaliter autem verum. Si autem id quod est falsum accipiatur ut falsum, erit falsum et materialiter et formaliter. Si autem id quod est verum apprehendatur ut falsum, erit verum materialiter, falsum formaliter. Et ideo in quolibet istorum casuum salvatur aliquo modo ratio periurii, propter aliquem falsitatis modum. Sed quia in unoquoque potius est id quod est formale quam id quod est materiale, non ita est periurus ille qui falsum iurat quod putat esse verum, sicut ille qui verum iurat quod putat esse falsum."

The analogous use of hylomorphic terminology will also allow St. Thomas to discuss the ontological and causal relationship between venial and mortal sins:

> Venial and mortal sin are divided in opposition to each other, as though they were species of one genus…but as an accident is distinguished from a substance. Therefore, where an accident dispose to a substantial form, so can a venial sin dispose to mortal.[115]

Later in the *Summa*, St. Thomas will use hylomorphic terminology to precisely describe original sin as "concupiscence, materially, but privation of original justice, formally."[116] Again, as I noted in the outset, the principle that governs the use of the terminology here is that whenever two things concur to make one, one of them is formal in regard to the other. Thus, properly speaking, with this definition, the Angelic Doctor teaches that original sin is neither concupiscence nor the privation of original justice. Analogously speaking, these realities are principles of original sin where the privation of original justice explains the concupiscence, as form specifies the matter within a composite.

Finally, St. Thomas uses matter-form terminology to describe the nature of grace. Notably, he defines grace as an accidental form that inheres to the soul: "Grace, as a quality, is said to act upon the soul, not in the mode of an efficient cause, but in the mode of a formal cause, as whiteness makes a thing white, and justice, just."[117] Or again, "Inasmuch as grace is a certain accidental quality, it does not act upon the soul efficiently, but formally, as whiteness is said to

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[115] *STh* I-II.88.3 ad 1: "Peccatum veniale et mortale non dividuntur ex opposito, sicut duae species unius generis…sed sicut accidens contra substantiam dividitur. Unde sicut accidens potest esse dispositio ad formam substantialem, ita et veniale peccatum ad mortale."

[116] *STh* I-II.82.3.

[117] *STh* I-II.110.2 ad 1: "Gratia, secundum quod est qualitas, dicitur agere in animam non per modum causae efficientis, sed per modum causae formalis, sicut albedo facit album, et iustitia iustum."

make a surface white."[118] With this definition in place, the Angelic Doctor can talk about the disposition of a person to grace as the disposition of matter to form: "Now taking grace in the first sense [as a habitual gift of God], a certain preparation of grace is required for it, since a form cannot come to be except in disposed matter."[119] Once again, the analogical use of hylomorphic language allows the Angelic Doctor to do *sacra doctrina,* where "all things [– including in this case the nature of grace –] are treated of under the aspect of God: either because they are God Himself or because they are ordered to God as their beginning and end."[120]

Conclusion

This summary of hylomorphic theory and the overview of its analogous use in the moral theology of the *Summa theologiae* should make it clear that the notions of matter and form are foundational aspects of the thought of St. Thomas. In the next chapter, we continue our investigation in more detail by seeing how matter and form are used analogously in the analysis of human acts. It will illustrate how an understanding of hylomorphic theory and its analogous use in St. Thomas's theory of human acts can allow us to clarify and to resolve disputed moral questions in contemporary moral philosophy.

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[118] *STh* I-II.111.2 ad 1: "Secundum quod gratia est quaedam qualitas accidentalis, non agit in animam effective; sed formaliter, sicut albedo dicitur facere albam superficiem."
[119] *STh* I-II.112.2: "Primo igitur modo accipiendo gratiam, praeexigitur ad gratiam aliqua gratiae praeparatio, quia nulla forma potest esse nisi in materia disposita."
[120] *STh* I.1.7: "Omnia autem pertractantur in sacra doctrina sub ratione Dei, vel quia sunt ipse Deus; vel quia habent ordinem ad Deum, ut ad principium et finem."

CHAPTER TWO

Is a Placentectomy to Resolve a Crisis Pregnancy a Virtuous Act?
A Hylomorphic Investigation of Human Acts

<u>Introduction</u>

There has been much debate among Catholic bioethicists surrounding a much-publicized abortion case involving a placentectomy – a medical intervention to extract the placenta, the fetal/maternal organ that connects the developing fetal child to the uterine wall – to end the pregnancy of a woman with pulmonary arterial hypertension (PAH), performed at a formerly Catholic hospital in Phoenix, AZ. Catholic moral theologian, M. Therese Lysaught has argued that the controversial intervention was morally licit because it constitutes an indirect abortion where the death of the unborn child was only an unintended consequence of a procedure meant to save the life of the mother who was dying from her PAH. She has concluded that the former Catholic hospital "acted in accord with the Ethical and Religious Directives, Catholic moral tradition, and universally valid moral precepts."[1] This claim and the argument that gave rise to it have not only been affirmed but have also been rejected by Lysaught's peers.[2]

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[1] M. Therese Lysaught, "Moral Analysis of a Procedure at Phoenix Hospital," *Origins: CNS Documentary Service* 40 (2011): 537-549; p. 548.

[2] For a sampling of the published scholarly work in favor of Lysaught's conclusion, see Patrick McCruden, "The Moral Object in the 'Phoenix Case': A Defense of Sister McBride's Decision," *Christian Bioethics* 18 (2012): 301-311. For opposing views, see the following: Benedict M. Guevin, O.S.B., "Vital Conflicts and Virtue Ethics," *National Catholic Bioethics Quarterly* 10 (2010): 471-480; Thomas A. Cavanaugh, "Double-Effect Reasoning, Craniotomy, and Vital Conflicts: A Case of Contemporary Catholic Casuistry," *National Catholic Bioethics Quarterly* 11 (2011): 453-464; Martin Rhonheimer, "Vital Conflicts, Direct Killing, and Justice: A Response to Rev. Benedict Guevin and Other Critics," *National Catholic Bioethics Quarterly* 11 (2011): 519-540;

As even a cursory read of the scholarly literature will show, the controversy surrounding the Phoenix case is a dispute about how we are to describe and to morally specify a human act: Is a placentectomy to resolve a crisis pregnancy, a good or an evil act?[3] In this chapter, I investigate the hylomorphic framework used by St. Thomas to ground his theory of action. I begin with his description of a human act from two complementary perspectives. I then move to a discussion of the moral specification of an act as being either good or evil, a procedure that involves two closely linked steps. First, one has to specify a human act, i.e., one has to describe the act in a way that distinguishes it from other acts. Next, one has to determine the moral character of that specified act. Moral specification is undertaken by the agent himself when he deliberates the most prudent means towards attaining his end. To illustrate this theory of moral specification, we will then apply it to the act of self-defense.

To deepen our analysis, we then turn to objections to the Thomistic theory of action outlined in this chapter. I focus on the criticisms proffered by two contemporary Thomists, Fr. Martin Rhonheimer and Steven Long. Rhonheimer is representative of those moralists today who emphasize the primacy of the end in the moral specification of a human act, while Long is representative of one of two groups of moral theologians

Kevin L. Flannery, "Vital Conflicts and the Catholic Magisterial Tradition," *National Catholic Bioethics Quarterly* 11 (2011): 691-704; Gerald D. Coleman, "Direct and Indirect Abortion in the Roman Catholic Tradition: A Review of the Phoenix Case," *HEC Forum* 25 (2013): 127-143; and my essay, "Abortion in a Case of Pulmonary Arterial Hypertension: A Test Case for Two Rival Theories of Human Action," *National Catholic Bioethics Quarterly* 11 (2011): 503-518. This chapter develops my initial arguments in this earlier essay.

[3] In my view, from their essays listed in the previous footnotes, Fr. Martin Rhonheimer, Steven A. Long, and Fr. Benedict Guevin, O.S.B., among others, would agree with me that the central point of dispute in the Phoenix case involves the proper moral specification of a placentectomy to resolve a crisis pregnancy.

opposed to this view. Finally, I close with an examination of Lysaught's theory of action. I conclude that her analysis is flawed because it fails to acknowledge the proper role of the exterior act in the moral specification of the human act. A placentectomy when the fetal child is pre-viable is repugnant to right reason and therefore to the natural and to the eternal law because it involves an unjust attack on innocent life. It cannot be undertaken even to save the life of a sick and dying mother. This chapter will illustrate how an understanding of hylomorphic theory and its analogous use in St. Thomas's theory of human acts can allow us to clarify and to resolve disputed moral questions in contemporary moral philosophy.

The Hylomorphic Structure of the Human Act: Two Complementary Perspectives[4]

As we begin our discussion of the hylomorphic structure of Thomistic moral theology, it is fitting that we are starting with an investigation of the structure of human acts, for as St. Thomas explained in the prologue of the second part of the *Summa theologiae*, his moral theology concerns the acts of the human being as made in the image and likeness of God: "Now that we have spoken of the exemplar, namely God…it remains for us to consider His image, that is the human being, inasmuch as he too is the principle

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[4] For descriptions of the moral act similar to the account described here, see the following essays: Steven Jensen, "A Long Discussion regarding Steven A Long's Interpretation of the Moral Species," *The Thomist* 67 (2003): 623-643; Steven Jensen, "Do Circumstances Give Species," *The Thomist* 70 (2006): 1-26; Stephen Brock, "Veritatis Splendor 78, St. Thomas, and (Not Merely) Physical Objects of Moral Acts," *Nova et Vetera* 6 (2008): 1-62; Lawrence Dewan, O.P., "St. Thomas, Rhonheimer, and the Object of the Human Act," *Nova et Vetera* 6 (2008): 63-112; and Kevin F. Keiser, "The Moral Act in St. Thomas: A Fresh Look," *The Thomist* 74 (2010): 237-282.

of his actions, as having free-will and power of his actions."[5] Concretely, this means that human agents attain their beatitude – they return to their Father's house – through a life-long series of human acts ordered towards their ultimate end, where the end of a single act can become a means to a further end, and so forth: "Since human acts are necessary for the attainment of happiness, we must consider human acts so that we may know by which acts we may obtain happiness, and by which acts we are prevented from obtaining it."[6]

For St. Thomas, human agents can engage in two different categories of action. A human act (*actus humanus*), properly so called, is an act that has the human subject as its principle such that he acts with perfect knowledge of the end, which "consists in not only apprehending the thing which is the end, but also in knowing it as an end, and its relationship to that which is ordered to the end."[7] It is also called a voluntary act: "Since man especially knows the end of his work, and moves himself, the voluntary is especially found in his acts."[8] In contrast, an act of a man (*actus hominis*) is an act that does not proceed from the agent's deliberate will.[9] This category includes all reflexive, instinctive, and subconscious acts.

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[5] *STh* II-II (Prologue): "Postquam praedictum est de exemplari, scilicet de Deo … restat ut consideremus de eius imagine, idest de homine, secundum quod et ipse est suorum operum principium, quasi liberum arbitrium habens et suorum operum potestatem."

[6] *STh* I-II.6 (Prologue): "Quia igitur ad beatitudinem per actus aliquos necesse est pervenire, oportet consequenter de humanis actibus considerare, ut sciamus quibus actibus perveniatur ad beatitudinem, vel impediatur beatitudinis via."

[7] *STh* I-II.6.2: "Perfecta quidem finis cognitio est quando non solum apprehenditur res quae est finis sed etiam cognoscitur ratio finis, et proportio eius quod ordinatur in finem ad ipsum."

[8] *STh* I-II.6.1: "Unde, cum homo maxime cognoscat finem sui operis et moveat seipsum, in eius actibus maxime voluntarium invenitur."

[9] *STh* I-II.1.1.

From one perspective, for St. Thomas, the structure of a human act can be broken down into six alternating yet interpenetrating movements of the intellect and of the will, which relate to each other as matter and form.[10] I will focus here on the acts of the will given its central role in the voluntary, though I point out at the outset that at every step, the act of willing can only occur if the intellect presents some end to it as something desirable.[11]

As we noted in Chapter One, the will is the human agent's rational appetite. It is that power of the soul that moves him to an end apprehended precisely as an intelligible good: "For the will to tend to something, it is required not that this something be good truly but that it be apprehended as good."[12] As such, the human agent can desire particular ends under different formalities (*rationes*). For example, he can desire a peanut butter and jelly sandwich as nutritious, as pleasurable, or even, if he is allergic to peanuts,

[10] For instance, when St. Thomas describes the intellectual and volitional components involved in the will act of choice, he uses hylomorphic terminology: "That act whereby the will tends to something proposed to it as good, through being ordained to the end by the reason, is materially an act of the will, but formally an act of the reason." *STh* I-II.13.1: "Sic igitur ille actus quo voluntas tendit in aliquid quod proponitur ut bonum, ex eo quod per rationem est ordinatum ad finem, materialiter quidem est voluntatis, formaliter autem rationis." For further discussion on the dynamic relationship between the intellect and the will in St. Thomas, see Daniel Westberg, "Did Aquinas Change His Mind About the Will?" *The Thomist* 58 (1994): 41-60; Michael S. Sherwin, O.P., *By Knowledge and By Love: Charity and Knowledge in the Moral Theology of St. Thomas Aquinas* (Washington, D.C.: The Catholic University of America Press, 2005); and Lambert Hendricks, *Choosing from Love: The Concept of "Electio" in the Structure of the Human Act According to Thomas Aquinas* (Siena: Edizioni Cantagalli, 2010), pp. 277-328.

[11] cf. *STh* I-II.13.1. For recent discussion on the intellectual and volitional stages of the human act, see the following: Daniel Westberg, *Right Practical Reason* (Oxford: Oxford University Press, 1994), pp.119-135; David M. Gallagher, "The Will and Its Acts (Ia IIae, qq. 6-17)" in *The Ethics of Aquinas,* ed. Stephen J. Pope (Washington, D.C.: Georgetown University Press, 2002), pp. 69-89; and Joseph Pilsner, *The Specification of Human Actions in St. Thomas Aquinas* (Oxford: Oxford University Press, 2006), pp. 9-17.

[12] *STh* I-II.8.1: "Ad hoc igitur quod voluntas in aliquid tendat, non requiritur quod sit bonum in rei veritate, sed quod apprehendatur in ratione boni."

as poisonous. Since for St. Thomas, the end is either an action or a thing[13], the human agent could also desire the eating of food or the consuming of poison. Nonetheless what is important is that the end is both the motive for and object of the will.[14] Indirectly, however, it is the intellect that moves the will by apprehending a thing or an act, and by presenting it to the will as an intelligible good, whether real or apparent.

The first movement of a human will in a human act, called simple willing (*velle*), involves the attraction of the human agent to a possible end, apprehended by the intellect as a intelligible good.[15] As an example, a student realizes that she is hungry and conceives of nutritious food as a desirable end. This is followed by the will act called intention (*intentio*), which is the willing of that end as something attainable via some means, understood here as those things ordered towards the end (*eorum quae sunt ad finem*).[16] Here the agent commits himself to the particular end. Our student decides that she is going to eat nutritious food. Next, there is the third movement of the will, called consent (*consensus*), when the agent's will approves of all possible means as options that will allow him to attain the particular end that he desires.[17] The student decides that she has enough money for a cheeseburger or for a peanut butter and jelly sandwich, but not for both. Fourth, this is followed by the will act called choice (*electio*) which is the willing of one means in preference to another means precisely as ordered towards attaining the end.[18] Our student chooses the PB&J. Then there is the fifth movement of the will, called use

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[13] *STh* I-II.13.4.
[14] *STh* I-II.7.4.
[15] *STh* I-II.12.1 ad 4.
[16] Ibid.
[17] *STh* I-II.15.3.
[18] *STh* I-II.13.3.

(*usus*), when the agent wills to command some operation, usually through the exercise of the interior powers of the soul, the parts of the body, or external objects, so that the means are realized until the end is finally attained.[19] The student removes cash from her wallet, buys the sandwich at the cafeteria, and eats it. Lastly, the will rests in its possession of the end. This is the movement of the will called enjoyment (*fruitio*).[20] Our student savors the sandwich contentedly at her cafeteria seat.

Finally, and importantly, though the human act understood from this first perspective can be decomposed into distinct volitional steps, these distinct movements or acts of the will are unified into a single act of the will by the end. It is the end, as an intelligible good, that attracts the will as it moves from simple willing through the intermediate volitional steps of the human act until it rests in the enjoyment of the end. To put it another way, each intermediate step is willed by the human subject precisely as a means towards attaining the end: "In the execution of a work, the means are as the middle space and the end as the terminus. Wherefore just as natural motion sometimes stops in the middle and does not reach the terminus, so sometimes one works with the means without gaining the end. But in willing, it is the reverse, for the will arrives at the end through willing that which are ordered to the end."[21] Or again: "As the will is moved to those things that are for the sake of the end, as an end, … the movement of the will to the end and its movement to those things that are for the sake of the end are one and the

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[19] *STh* I-II.16.1.

[20] *STh* I-II.11.4.

[21] *STh* I-II.8.3 ad 3: "In executione operis, ea quae sunt ad finem se habent ut media, et finis ut terminus. Unde sicut motus naturalis interdum sistit in medio, et non pertingit ad terminum; ita quandoque operatur aliquis id quod est ad finem, et tamen non consequitur finem. Sed in volendo est e converso, nam voluntas per finem devenit ad volendum ea quae sunt ad finem."

same thing."[22] Our student considering, choosing, buying, and eating the PB&J is engaged in a single human act that satiates her hunger. As we will discuss in greater detail below, it is important to acknowledge that for St. Thomas, it is the proximate end of the moral action and not its remote ends that specifies a human act, where a proximate end can be ordered to disparate remote ends.[23] Our student's desire to satiate her hunger by acquiring nutritious food, and not her desire to go to the gym, which may be why she is satiating her hunger at this time, is what moves her to consider, choose, buy, and eat the PB&J. The end initiates, unites, and integrates the act of the will. From here onwards, when I refer to the end, I am referring to the proximate end of the will that specifies the act. Also notice in the just-cited text above that St. Thomas compares the movement of the will to natural movement. As the will moves towards the end through the intermediate means, so does a body in motion move from one original place to its final place, its *terminus ad quem*, through all intermediate places. This analogy will feature prominently below when we consider the question of how one specifies a human action.

From another complementary perspective, whose hylomorphic relationships are summarized in the accompanying figure on the adjacent page, for St. Thomas, the structure of the human act can be broken down into two principles, an interior act of the will and an exterior act, which are related to each other as form and matter. The interior act of the will is the act that is elicited from the will by the end that is presented to it by the intellect as an intelligible good.[24] It is the movement of the will from simple willing

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[22] *STh* I-II.12.4: "Voluntas fertur in id quod est ad finem, propter finem. Et sic unus et idem subiecto motus voluntatis est tendens ad finem, et in id quod est ad finem."
[23] *STh* I-II.1.3 ad 3.
[24] *STh* I-II.18.6.

through enjoyment of the end described in the first perspective of the structure of the human act discussed above. As we will consider in greater detail below, the object of the interior act of the will, which I will designate as the object[interior act], is the end itself, the intelligible good that is presented to the will by the intellect as desirable, and willed by the will as such.[25] Recall from Chapter One that the object is understood to be that reality that reduces the power of the soul from potency to act in the same way that color reduces the external sense of sight from potency to act. As we have already seen, it is the end that first attracts and then moves the will so that the human agent will attain his end.

SPECIFICATION OF THE HUMAN ACT

$$\boxed{\text{Human Act}} = \frac{\text{FORM}^{\text{human act}}}{\text{MATTER}^{\text{human act}}} = \frac{\text{Interior act of the will specified by the END}}{\text{Exterior act specified by the MATTER}^{\text{exterior act}}}$$

$$\boxed{\begin{array}{c}\text{Moral Object}\\\text{of the Human Act}\end{array}} = \frac{\text{FORM}^{\text{object.human act}}}{\text{MATTER}^{\text{object.human act}}} = \frac{\text{END desired by the will}}{\begin{array}{c}\text{Commanded act of the will desired by the will}\\\text{as a means to the END}\end{array}}$$

MORAL SPECIFICATION OF THE HUMAN ACT

$$\boxed{\begin{array}{c}\text{A Human Act is}\\\text{GOOD}\end{array}} \text{ IFF } \boxed{\begin{array}{c}\text{The Moral Object}\\\text{of the Human Act is}\\\text{GOOD}\end{array}} \text{ IFF } \frac{\text{END is good in itself.}}{\begin{array}{c}\text{Commanded exterior act is GOOD in itself.}\\\text{AND}\\\text{Commanded exterior act is GOOD}\\\text{in relation to the END}\end{array}}$$

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[25] *STh* I-II.10.2.

In contrast, the exterior act is the act that is not elicited, but is commanded by the will. This is the act that is chosen by the will in the movement of *electio* when the human agent chooses one means in preference to another means to attain his end.[26] Our student chooses to buy and to eat the PB&J rather than to buy and to eat the cheeseburger. These were two alternative exterior acts. Notice that the exterior act is also the same act that is commanded by the will in the movement of *usus,* when the human agent commands some operation, usually through the exercise of the interior powers of the soul, of the parts of the body, of external objects, or combinations of these, so that the means are realized until the end is attained. The student actually takes money out of her purse, buys the sandwich, and eats it. As we will discuss in more detail below, where the object of the interior act is the end, the object of the exterior act, which I will designate as the object^exterior act, is that upon which the agent acts, what St. Thomas calls the matter about which (*materia circa quam*)[27] or simply, the matter (*materia*) of that exterior act[28]. It is the non-action upon which the commanded powers of the soul act. I will designate this as matter^exterior act. In this case, the *materia circa quam* of the exterior act is the sandwich. It is the sandwich that the student buys and eats. As St. Thomas explains, "food when transformed is the effect of the nutritive power but food before being transformed is related to the nutritive power as the matter about which is related to its operation."[29] The

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[26] *STh* I-II.13.5 ad 1.
[27] *STh* I-II.18.2 ad 2.
[28] *STh* I-II.20.4 ad 2. Cf. *STh* I-II.20 aa 1-4.
[29] *STh* I-II.18.2 ad 3: "Sicut alimentum transmutatum est effectus nutritivae potentiae, sed alimentum nondum transmutatum comparatur ad potentiam nutritivam sicut materia circa quam operatur."

matter^{exterior act} is the matter as object that specifies the exterior act distinguishing it from other possible exterior acts.

Finally, though the human act understood from this second perspective can be decomposed into distinct acts of the will, St. Thomas also believed that these two acts come together as form and matter to compose a integral unity: "That which is on the part of the will is formal to that which is on the part of the exterior action for the will uses the limbs to act as instruments."[30] In the same response, and as we will discuss in greater detail below, he will also relate the object of the interior act to the object of the exterior act as form to matter:

> Therefore just as the exterior action has its species from the object upon
>
> which it bears, so the interior act of the will has its species from the end, as
>
> its own proper object. Now that which is on the part of the will is formal to
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> that which is on the part of the exterior action…Consequently the species
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> of a human act is considered formally with regard to the end, but
>
> materially with regard to the object of the exterior act.[31]

This hylomorphic relationship between the interior act of the will and the exterior act and their corresponding objects must figure prominently in any discussion of the Thomistic specification of the human act. This should not be surprising since both the end and the exterior act, understood as desirable goods, function as objects of the will: Our student

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[30] *STh* I-II.18.6: "Ita autem quod est ex parte voluntatis, se habet ut formale ad id quod est ex parte exterioris actus, quia voluntas utitur membris ad agendum, sicut instrumentis."
[31] Ibid.: "Sicut igitur actus exterior accipit speciem ab obiecto circa quod est; ita actus interior voluntatis accipit speciem a fine, sicut a proprio obiecto. Ita autem quod est ex parte voluntatis, se habet ut formale ad id quod est ex parte exterioris actus…Et ideo actus humani species formaliter consideratur secundum finem, materialiter autem secundum obiectum exterioris actus."

who desires nutritious food, the end of her act, also desires the buying and eating of the PB&J, the exterior act that will allow her to obtain that food.

In closing, it is important to point out that we can relate these descriptions of the human act to the Aristotelian description of causality described in Chapter One. Indeed, as we will see below, the moral specification of the human act – especially the specification of the exterior act – involves not only identifying how the human agent as an efficient cause realizes some form in some matter to attain some end, but also determining how and if these causal principles are in accord or not in accord with both right reason and the eternal law.

The Moral Specification of a Human Act: Specification

The moral specification of a human act involves the identification of that act as being either a good or an evil act. At the top of this chapter, I framed the contemporary bioethical debate over the use of a placentectomy to resolve a crisis pregnancy as one involving a dispute over the proper moral specification of this medical intervention: Is a placentectomy to resolve a crisis pregnancy, a good or an evil act? However, before we can answer this specific question, we will need to address the more general concern of how one morally specifies a human act more generally.

Moral specification involves two interdependent steps that follow the specification of an act according to its natural species. Thus, after determining that this human act is an act of killing a man rather than an act of killing a deer, one has to specify an act of killing a man according to its moral species. Is this act of killing a man, an act of murder,

an act of self-defense, or an act of public execution? Next, one has to determine the moral character of that specified act. Is this act of murder, a good or an evil act? Or, is this act of public execution, a good or an evil act? Note that these steps are interdependent because in specifying an act of killing a man, either as an act of murder or an act of self-defense, one is already undertaking a moral specification of the act because, as we will see below, an act of murder, by definition, is evil while an act of self-defense, by definition, is good. Importantly, the specification of the human act has to be undertaken from the perspective of the human agent who is using his practical reason to understand a human act precisely as a good act that will allow him to realize some real or apparent good. Human agents always choose their acts as specified by moral objects because they think that both the ends and the exterior acts that together constitute these moral objects – truly or falsely – will perfect them.

As we saw in Chapter One, the specification of a substance of a natural kind is attributed to its form, which in turn determines its *telos*. A kangaroo is specified by the kangaroo form, which also orders it towards its *telos* as a mature, reproducing, hopping marsupial. In comparison, however, a human act does not have a form properly so called, but it does have a *telos*. Recall St. Thomas's comparison, cited above, between the movement of the will towards its desired end understood as an intelligible good, and the natural movement of a body from its original location to its final place, called its term. Both movements have a *telos* that distinguishes them from other similar movements. A flight from Providence to London can be distinguished from a flight from Providence to Seattle, by simply specifying the passenger's destination. Therefore, it is not surprising

that St. Thomas will teach that a human act is specified by its *telos*, which he will call its object:

> Now the first thing that belongs to the fullness of being seems to be that which gives a thing its species. And just as a natural thing has its species from its form, so an action has its species from its object, as movement from its terminus.[32]

Joseph Pilsner notes that St. Thomas uses the object of a human act to explain its specification in numerous places in his writings and refers to it more frequently as the primary determinant than to any other possible moral determinant of a human act.[33] However, there are also instances where St. Thomas refers to the *telos* of the human act as its end:

> In so far as each thing is assigned to a species according to act and not according to potentiality, things composed of matter and form are established in their respective species by their own forms…Human acts, whether they are considered as actions or as passions, are assigned to their species by the end.[34]

Thus, to specify a human act, we must properly identify the object that distinguishes this act from a human act of another kind.

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[32] *STh* I-II.18.2: "Primum autem quod ad plenitudinem essendi pertinere videtur, est id quod dat rei speciem. Sicut autem res naturalis habet speciem ex sua forma, ita actio habet speciem ex obiecto; sicut et motus ex termino."

[33] Pilsner, *The Specification of Human Actions in St. Thomas Aquinas,* p. 71.

[34] *STh* I-II.1.3: "Unumquodque sortitur speciem secundum actum, et non secundum potentiam, unde ea quae sunt composita ex materia et forma, constituuntur in suis speciebus per proprias formas…Actus humani, sive considerentur per modum actionum, sive per modum passionum, a fine speciem sortiuntur."

How then does one identify the object of a human act, an object which I will designate as object^human act? Recall that the human act is constituted most fundamentally by an act of the will that is informed by the intellect. Thus, it should not be surprising that for St. Thomas, the object of the human act, object^human act is the object of the will.[35] It is the intelligible good that initiates, unifies, and integrates the movement of the will. Notably, since a human act often consists of many ordered ends that are ordered to each other as means to an end, it is the most proximate end chosen by the will that specifies a particular human act. As St. Thomas explains, "An act, in so far as it proceeds from the agent, is ordained to one proximate end from which it has its species, but it can be ordained to several remote ends where one is the end of the other."[36] The proximate end is the *telos* that is the specific motivation and cause of this particular act of the will.

As I explained earlier, the will is specified by the end, more precisely, by the proximate end, which is the immediate intelligible good presented to it by the intellect as desirable. This intelligible good is not just a thing or an act. It is a thing or an act desired under a particular formality presented to it by the intellect. This obtains because particular things and particular acts, understood as goods, can be desired by the will under different formalities:

> It is possible, however, that an act which is one in respect of its natural
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> species can be ordained to several ends of the will as "to kill a man," which
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> is but one act in respect of its natural species, can be ordained, as to an

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[35] *STh* I-II.19.1.

[36] *STh* I-II.1.3 ad 3: "Actus numero, secundum quod semel egreditur ab agente, non ordinatur nisi ad unum finem proximum, a quo habet speciem, sed potest ordinari ad plures fines remotos, quorum unus est finis alterius."

end, to the safeguarding of justice and to the satisfying of anger. From this

there are diverse acts according to moral species for in one way there will

be an act of virtue, and in another, an act of vice. For a movement does not

receive its species from that which is its terminus accidentally, but only

from that which is its terminus essentially.[37]

In our example, eating a PB&J can be ordered towards the satiating of one's hunger where

nutritious food is desired, or the killing of oneself, if our student is allergic to peanuts,

where poisonous food is desired. It is the intellect that presents a good to the will under a

particular formality: "Now the will's object is proposed to it by reason…Therefore the

goodness of the will depends upon reason."[38] Thus, as we will see shortly, the goodness or

malice of the will, and thus, of the human act, depends on the conformity of the end to

right reason.

However, the human agent does not simply desire the proximate end. The student

does not simply desire the nutritious food. She must also desire and choose those

commanded means that will allow her to actually obtain the food. She must desire and

choose the buying and eating of the PB&J. Thus, as we noted above, the will also has the

exterior act as an object, but this is an object that is desired precisely as a means to

attaining the object of the interior act of the will, which is the proximate end.

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[37] *STh* I-II.1.3 ad 3: "Possibile tamen est quod unus actus secundum speciem naturae, ordinetur ad diversos fines voluntatis, sicut hoc ipsum quod est occidere hominem, quod est idem secundum speciem naturae, potest ordinari sicut in finem ad conservationem iustitiae, et ad satisfaciendum irae. Et ex hoc erunt diversi actus secundum speciem moris, quia uno modo erit actus virtutis, alio modo erit actus vitii. Non enim motus recipit speciem ab eo quod est terminus per accidens, sed solum ab eo quod est terminus per se."
[38] *STh* I-II.19.3: "Obiectum autem voluntatis proponitur ei per rationem… Et ideo bonitas voluntatis dependet a ratione."

As an object of the will, the exterior act has to be desired precisely as an intelligible good presented to it by the intellect, precisely as it is understood and ordered by the intellect. Therefore, a particular exterior act needs to be distinguished from all other possible exterior acts. Otherwise, the intellect would not be able to present it to the will as *this* intelligible good rather than *that* intelligible good. Thus, the exterior act too must have an object that specifies it. As we discussed above, for St. Thomas, this object, the object[exterior act] is the matter about which (*materia circa quam*) or simply, the matter (*materia*) of that exterior act, matter[exterior act]. The matter[exterior act] is the exterior act's object because it is the *terminus* of the movement of the exterior act that is chosen and commanded by the will. Or to put it another way, it is that non-action, that reality, upon which the commanded powers of the soul act during the exercise of the exterior act. As such, the matter[exterior act] as *terminus* of the exterior act can distinguish one exterior act from another. In our example, the matter[exterior act] is the PB&J itself, because the act of eating a PB&J is distinguished from the act of eating a cheeseburger by the term of this particular act of eating.

To recap then, a human act is constituted by two acts of the will linked to each other as form and matter. The interior act is specified by the proximate end, which is the intelligible good presented to it by the intellect. This is the formal principle of the human act, form[human act]. The proximate end unifies and integrates the movement of the will. The exterior act is specified by its matter[exterior act], which is the terminus of the commanded action of the will that is elicited from one or more of the soul's other powers. This is the material principle of the human act, matter[human act]. The matter[exterior act] distinguishes one exterior act from another. Both the exterior act and the proximate end can serve as

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objects of the will because both are desired by the will, the former as means to the latter, in the execution of the human act: "The end, considered as a thing, and those things that are ordered towards that end are distinct objects of the will. But in so far as the reason for willing that which is ordered towards the end is the end, they are one and the same object."[39] This hylomorphic relationship between the proximate end and the exterior act will figure prominently in our analysis of the moral object of the human act below.

The Moral Specification of a Human Act: Moral Specification

Once a human act is specified by its moral object, it is now amenable to further moral analysis. (Though as I noted earlier, I do not think that the specification of a human act can be disentangled from its moral analysis since human agents always choose their acts as specified by moral objects because they think that both the ends and the exterior acts that constitute these moral objects – truly or falsely – will perfect them.) For St. Thomas – as it is for the Catholic tradition more generally[40] – there are three determinants of morality, which are the object chosen, the end intended, and the circumstances of the action.[41] However, it is clear that for the Angelic Doctor, the object of the human act is its primary moral determinant: "Consequently good and evil will are different acts according to species. Now the specific difference in acts is according to objects…Therefore good and evil in the acts of the will depends properly upon the

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[39] *STh* I-II.12.4 ad 2: "Finis, inquantum est res quaedam, est aliud voluntatis obiectum quam id quod est ad finem. Sed inquantum est ratio volendi id quod est ad finem, est unum et idem obiectum."

[40] *Catechism of the Catholic Church*, no. 1750.

[41] *STh* I-II.18 aa 2-4.

objects."[42] Or again: "Just as the primary goodness of a natural thing depends upon its form, which gives it its species, so the primary goodness of a moral action depends upon its suitable object."[43] This truth remains the teaching of the Catholic Church.[44] As we will see below, the two other moral determinants of the human act mentioned by St. Thomas, its end and its circumstances, only specify an act as good or evil, as they participate in the object of that act.

But what exactly is the object of the human act? As we discussed above, both the proximate end of the interior act of the will, which is the object[interior act], and the exterior act in itself as desired and chosen as a means towards attaining the end, are both objects of the will because both are desired by the will in the execution of the act, albeit in different ways. Thus, both play a role in moral specification, a truth that is captured by the claim that these two objects, the proximate end and the exterior act, are the formal and the material principles respectively, which constitute the single moral object of that act, properly so called, and designated here as object[human act], which specifies the act as either good or evil.

How does the moral object of a human act, the object[human act], specify that act as good or evil? As St. Thomas explains, the goodness of a human act depends upon the fullness of being of that act: "We must therefore say that action, in so far as it has being,

[42] *STh* I-II.19.1: "Unde voluntas bona et mala sunt actus differentes secundum speciem. Differentia autem speciei in actibus est secundum obiecta…Et ideo bonum et malum in actibus voluntatis proprie attenditur secundum obiecta."
[43] *STh* I-II.18.2: "Et ideo sicut prima bonitas rei naturalis attenditur ex sua forma, quae dat speciem ei, ita et prima bonitas actus moralis attenditur ex obiecto convenienti."
[44] John Paul II, *Veritatis splendor*, no. 78: "The morality of the human act depends primarily and fundamentally on the 'object' rationally chosen by the deliberate will, as is borne out by the insightful analysis, still valid today, made by Saint Thomas (cf. *STh* I-II.18.6)."

has goodness, whereas in so far as it is lacking in something that is due to its fullness of being, it is lacking in goodness, and is said to be evil, as for example, if it lacks that quantity according to reason, or its due place, or something of the kind."[45] This fullness or defect in being in the human act is constituted by the fullness or the defect in its moral object:

> Good and evil are essential differences of the act of the will. Because good and evil of themselves pertain to the will; just as truth and falsehood pertain to reason…Consequently good and evil will are acts differing in species. Now the specific difference in acts depends upon objects. Therefore good and evil in the acts of the will is properly according to objects.[46]

Thus, for a human act to be good, both the proximate end and the exterior act, which are the formal and material principles of the act's moral object respectively, must each possess the fullness of being. Both of them individually and together as a hylomorphic reality must be good.

Next, whether the human act is full or defective in its being is determined by right reason: "Because the good understood is the proportionate object of the will…therefore

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[45] *STh* I-II.18.1: "Sic igitur dicendum est quod omnis actio, inquantum habet aliquid de esse, intantum habet de bonitate, inquantum vero deficit ei aliquid de plenitudine essendi quae debetur actioni humanae, intantum deficit a bonitate, et sic dicitur mala, puta si deficiat ei vel determinata quantitas secundum rationem, vel debitus locus, vel aliquid huiusmodi."

[46] *STh* I-II.19.1: "Bonum et malum sunt per se differentiae actus voluntatis. Nam bonum et malum per se ad voluntatem pertinent; sicut verum et falsum ad rationem…Unde voluntas bona et mala sunt actus differentes secundum speciem. Differentia autem speciei in actibus est secundum obiecta…Et ideo bonum et malum in actibus voluntatis proprie attenditur secundum obiecta."

the goodness of the will depends on reason, in the same way that it depends upon the object."[47] It is right reason that dictates the suitability of a particular object[human act] for a particular action. To put it another way, it is reason that determines an intelligible good, but it is right reason that determines if that intelligible good is a real or just an apparent good with respect to the human agent who is ordered by nature towards his perfection in God.

Lastly, the rightness of human reason depends on its conformity to the eternal law: "For human reason is the rule of the human will, from which it derives from goodness, from the eternal law, which is the Divine Reason."[48] Since it is the eternal law that determines human nature and therefore its perfection, it is eternal law that is the measure by which we identify those acts that will allow us to realize our happiness and those acts that will prevent us from realizing it. Putting this all together, a human act is good if its being, as determined by its moral object, the object[human act], is in accord with right reason, and therefore, with the eternal law.

Recall once again, however, that the single moral object of a human act, the object[human act], is constituted by two objects of the will, the proximate end and the exterior act, related to each other as form and matter. Therefore, for an act to be good, both objects of the will, its proximate end and its commanded exterior act have to be in accord with right reason. Both of them need to have the fullness of being due to them. Both of

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[47] *STh* I-II.19.3: "Obiectum autem voluntatis proponitur ei per rationem…Et ideo bonitas voluntatis dependet a ratione, eo modo quo dependet ab obiecto."

[48] *STh* I-II.19.4: "Quod autem ratio humana sit regula voluntatis humanae, ex qua eius bonitas mensuretur, habet ex lege aeterna, quae est ratio divina….Unde manifestum est quod multo magis dependet bonitas voluntatis humanae a lege aeterna, quam a ratione humana, et ubi deficit humana ratio, oportet ad rationem aeternam recurrere."

them have to be good. As St. Thomas clearly teaches, a defect in one leads to a defect in the whole: "For an action is not good simply, unless it is good in all ways since evil results from any single defect, but good from the complete cause."[49] The proximate end is specified as good or evil in one way, which is its conformity to right reason and therefore to the eternal law. However, and this is significant, for St. Thomas, the exterior act is specified as good or evil in two ways:

Exterior actions may be said to be good or bad in two ways. Firstly, according to their genus and the circumstances connected with them as the giving of alms, if the required conditions be observed, is said to be good. Secondly, a thing is said to be good or evil, from its relation to the end as the giving of alms for vainglory is said to be evil. Now, since the end is the proper object of the will, it is manifest that this aspect of good or evil, which the exterior action derives from its relation to the end, depends first of all in the act of the will, upon which the exterior action depends. On the other hand, the goodness or malice which the exterior action has of itself, on account of its being about due matter and its being attended by due circumstances is not derived from the will but rather from the reason.[50]

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[49] *STh* I-II.18.4 ad 3: "Non tamen est actio bona simpliciter, nisi omnes bonitates concurrant, quia quilibet singularis defectus causat malum, bonum autem causatur ex integra causa."

[50] *STh* I-II.20.1: "Aliqui actus exteriores possunt dici boni vel mali dupliciter. Uno modo, secundum genus suum, et secundum circumstantias in ipsis consideratas, sicut dare eleemosynam, servatis debitis circumstantiis, dicitur esse bonum. Alio modo dicitur aliquid esse bonum vel malum ex ordine ad finem, sicut dare eleemosynam propter inanem gloriam, dicitur esse malum. Cum autem finis sit proprium obiectum voluntatis, manifestum est quod ista ratio boni vel mali quam habet actus exterior ex ordine ad

Or again:

> We may consider a twofold goodness or malice in the exterior action, one
> according to due matter and circumstances, and the other according to the
> order to the end. And that which is according to the order to the end,
> depends entirely on the will while that which is according to due matter or
> circumstances, depends on the reason, and on this goodness depends the
> goodness of the will, in so far as the will tends towards it.[51]

Therefore, the morality of the integral act depends on the goodness of the proximate end,
on the goodness of the exterior act in itself, i.e., "in respect of due matter and
circumstances," and on the goodness of the exterior act in relation to the end, i.e., "in
respect of the order to the end." These three sources of goodness together constitute the
goodness of the moral object of the act, the object[human act], understood in its fullness. A
defect in any one of these parts of the moral object is a defect in the whole. Why? Because
each is an object of the will. As such, each can order or disorder the will as an object of
the will's desire.

To illustrate the importance of these three-fold sources of goodness or of badness
of the act, consider the three following scenarios. In the first case, already described
above, our student buys and eats a PB&J to satisfy her hunger. Here her proximate end is

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finem, per prius invenitur in actu voluntatis, et ex eo derivatur ad actum exteriorem.
Bonitas autem vel malitia quam habet actus exterior secundum se, propter debitam
materiam et debitas circumstantias, non derivatur a voluntate, sed magis a ratione."
[51] *STh* I-II.20.2: "In actu exteriori potest considerari duplex bonitas vel malitia, una
secundum debitam materiam et circumstantias; alia secundum ordinem ad finem. Et illa
quidem quae est secundum ordinem ad finem, tota dependet ex voluntate. Illa autem
quae est ex debita materia vel circumstantiis, dependet ex ratione, et ex hac dependet
bonitas voluntatis, secundum quod in ipsam fertur."

the nutritious food that will satisfy her hunger. It is good. The exterior act that she has deliberately chosen is the eating of a PB&J. It is also good. (Notice that acknowledging this source of goodness in our action theory allows us to ask our student for her reason(s) in choosing a PB&J over a cheeseburger. Why did she think that eating the PB&J is a better act than eating the cheeseburger? She must have these reasons because her choice of the former over the latter suggests that she has judged that the former is better than the latter.) Finally, the exterior act in relation to the proximate end, eating a PB&J to obtain the nutritious food to satisfy her hunger, is also good. Her act is a good one in the fullness of its being.

In the second case, a suicidal student who knows that she is allergic to peanuts buys and eats a PB&J to kill herself. Here her proximate end that she desires, the poisonous food that will end her own life, is contrary to right reason which grasps that her life is an authentic good that needs to be preserved. We can therefore conclude that poisonous food that will end one's life is an evil end that makes any particular human act chosen to attain this end, an evil one regardless of the exterior act and its relationship to the end. Poisonous food constitutes one possible proximate end that specifies the human act we call suicide. A defect in the proximate end detracts from the perfection of the human act. Again, "for an action is not good simply, unless it is good in all ways since evil results from any single defect, but good from the complete cause."[52]

In the third case, our student takes a PB&J from her classmate's lunchbox without her friend's permission and eats it. Here, her proximate end, nutritious food that will

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[52] *STh* I-II.18.4 ad 3: "Non tamen est actio bona simpliciter, nisi omnes bonitates concurrant, quia quilibet singularis defectus causat malum, bonum autem causatur ex integra causa."

satisfy her hunger, is a good one. However, her exterior act would be repugnant to right reason. It would be an evil act specified by an evil object, the object[exterior act], which in this case is its matter[exterior act], which is the alienated PB&J: "For an action is said to be evil in its species, not because it does not have an object, but because it has an object in disaccord with reason, for instance, to appropriate another's property."[53] The object[exterior act] is evil because someone else's sandwich taken without his permission is not apt matter in the moral order to be the term for an act of eating to nourish oneself. As an act in itself, i.e., "in respect of due matter and circumstances," eating a stolen sandwich is evil. As an act in relation to the end, i.e., "in respect of the order to the end," eating a stolen sandwich to nourish oneself is also evil because it is contrary to right reason to eat a stolen sandwich to satisfy one's hunger. In this example, the exterior act of eating a stolen PB&J has a two-fold malice, though a defect in only one would be enough to detract not only from the perfection of the exterior act but also from the perfection of the human act as a whole. The defect in the exterior act makes the integral human act defective in its being. It too is evil.

To summarize: A human act is morally good if has the fullness of being due to it. This perfection is realized when the end of the interior act, the exterior act in itself, and the exterior act in relation to the end, are all in accord with right reason, and therefore with the eternal law. A defect in any one of these sources of goodness for the moral object, the object[human act], is enough to mar the perfection of the whole.

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[53] *STh* I-II.18.5 ad 2: "Dicitur enim malus actus secundum suam speciem, non ex eo quod nullum habeat obiectum; sed quia habet obiectum non conveniens rationi, sicut tollere aliena."

But what about the two other determinants of morality mentioned above? Recall that for St. Thomas, there are three determinants of morality, which are the object chosen, the end intended, and the circumstances of the action. In response, these are moral determinants that give species to human acts, because each is desired by the will in some way as an intelligible good. Therefore, it should not be surprising that for St. Thomas, the proximate end and the circumstances only act as moral determinants when they participate in either one of the two objects of the will, the proximate end and the commanded exterior act, which are the two hylomorphic principles of the moral object of the human act, the object[human act], described above.

First, as we have already seen, the proximate end intended, as the object of the interior act of the will, the object[interior act], specifies the moral character of the will as the formal principle of the moral object of the human act, the object[human act].[54] The proximate end determines the morality of the human act because it initiates, attracts, and integrates the movements of the will. Next, the circumstances are the conditions surrounding a human act that can contribute to increasing or diminishing its goodness or its malice and the degree of our responsibility for it.[55] These conditions include answers to the questions: Who, What, When, Where, Why, How, and By which means.[56] For St. Thomas, a condition only specifies the goodness or malice of an act when the intellect judges that it is constitutive of the object[humn act] as a specific difference:

> A circumstance is sometimes taken as the essential difference of the object,
> as it is compared to reason, and then it can specify a moral act. And it

[54] *STh* I-II.18.6.
[55] *STh* I-II.18.11.
[56] *STh* I-II.7.3.

must be so whenever a circumstance transforms an action from good to evil for a circumstance would not make an action evil, except through it being repugnant to reason.[57]

Or again: "A circumstance, as long as it is a a circumstance, when it is a mere accident, does not specify an action, but when it becomes a principal condition of the object, when it is this, does specify the action."[58] In these scenarios where a condition participates in the moral specification of the act, it is not a circumstance properly so called. Circumstances properly so-called are not involved in the essential specification of the act. However, as St. Thomas points out, there are times when a circumstance may add or detract from the goodness of an act. Thus, it can aggravate or diminish the sin.[59]

Finally, it is important to emphasize that the act of describing the moral object of the human act, the object[human act], is an act that is proper to the intellect. It is the intellect that presents objects to the will under the formality of an intelligible good. In our example, the food, as proximate end, is grasped as something desirable by the will, because it is presented to it as nutritious by the intellect. The stolen PB&J, as the matter of the exterior act, is grasped as something that does not belong to me, again by the intellect. And the act of eating a stolen sandwich is grasped as something repugnant to right reason, again by the intellect. Lastly, it is the intellect that judges whether or not a

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[57] *STh* I-II.18.5 ad 4: "Quod circumstantia quandoque sumitur ut differentia essentialis obiecti, secundum quod ad rationem comparatur, et tunc potest dare speciem actui morali. Et hoc oportet esse, quandocumque circumstantia transmutat actum de bonitate in malitiam, non enim circumstantia faceret actum malum, nisi per hoc quod rationi repugnat."

[58] *STh* I-II.18.10 ad 2: "Circumstantia manens in ratione circumstantiae, cum habeat rationem accidentis, non dat speciem, sed inquantum mutatur in principalem conditionem obiecti, secundum hoc dat speciem."

[59] *STh* I-II.18.11.

particular condition is accidental to the moral object of the act or is essential to it. Hence, for St. Thomas, the fact that a stolen object is a consecrated vessel stolen from a church adds a circumstance that specifies the act because it adds "an additional repugnance to the order of reason."[60] The condition that the stolen object is sacred specifies the act as not only an act of theft but also an act of sacrilege.

The Moral Specification of a Human Act: Specifying Simple and Complex Acts

In the *articuli* that deal with the moral specification of the human act, St. Thomas includes a substantial discussion of the relationship between the two objects of the will, the proximate end and the exterior act, that constitute the moral object of the human act as form and matter. This discussion of the source of goodness or malice of the exterior act as "that which is in respect of the order to the end," is at the heart of the distinction between simple and complex human acts, properly so called.

St. Thomas begins by pointing out that the object of the exterior act can stand in a two-fold relation to the object of the interior act.[61] First, the object of the exterior act, which is the matter upon which the commanded powers of the soul act, the object[exterior act], can be ordained by its nature to the object of the interior act, object[interior act], which is the proximate end of the will. This is called a *per se* ordering. St. Thomas uses a battle example to illustrate his point: "Thus to fight well is ordained in itself to victory."[62] In our example, the two possible items the student considers as matter for her exterior act, the cheeseburger and the PB&J, are ordained by their very nature to the object of the

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[60] Ibid.
[61] *STh* I-II.18.7.
[62] Ibid.: "Sicut bene pugnare per se ordinatur ad victoria."

student's interior act, the nutritious food she desires to satiate her hunger. This is a *per se* ordering that is grasped by the intellect as it considers the nature of a cheeseburger and a PB&J: A sandwich of any kind is ordered towards being nutritious as matter receives form. As such, to make the parallel to St. Thomas's example, eating a cheeseburger or a PB&J is of itself ordered towards nutrition.

In contrast, the object of the exterior act can be ordained to the object of the interior act, not by nature, but only by intention. This is called a *per accidens* ordering. St. Thomas explains this with the following example: "Thus to take what belongs to another is ordained accidentally to the giving of alms."[63] To parallel his example, we could imagine our student selling her watch to get the cash she needs to buy the PB&J. The watch as matter is not ordered towards receiving the form of nutritious food. Thus, selling the watch is of itself not ordered towards obtaining nutrition. One could imagine doing the former without it leading to the latter, or vice versa. This is only an accidental *per accidens* relationship between the two objects and the two acts they specify, imposed on them by the human agent's intellect as she strives to attain her end.

At this point, I would like to underscore that one cannot ascertain the nature of relationship between the object of the interior act and the object of the exterior act in the order of reason without first specifying the exterior act in itself. A human agent can only know the matter of this particular exterior act, matter$^{\text{exterior act}}$, after he has distinguished a particular exterior act from all the other possible exterior acts that could be commanded by the soul. This judgment involves the intellect first grasping the exterior act as an

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[63] Ibid.: "Sicut accipere rem alienam per accidens ordinatur ad dandum eleemosynam."

intelligible good. Once this judgment has been made, the agent's intellect can then discern whether the relationship between the object of the exterior act and the object of the interior act is *per se* or *per accidens*. This dynamic will figure prominently in our analysis below.

How does the hylomorphic relationship between the two objects of the will, the proximate end and the exterior act, understood as the hylomorphic principles of the one moral object, the object[human act], influence the specification of a human act? For St. Thomas, when the objects of the will are essentially ordered to each other, then the human act is specified by the object of the interior act, i.e., the proximate end, which directs the object of the exterior act as form orders matter in the determination of a substance.[64] Thus, our student who buys a PB&J and eats it to nourish herself is eating a PB&J. It is a simple act because the matter of the exterior act, the PB&J, is apt to receive the form imposed on it by the end, nutritious food, because the former is ordered to the latter by its very nature. Here, the end gives species. It integrates the buying and eating into the one simple act of eating.

In contrast, when the objects of the will are only accidentally ordered to each other, then the objects specify two independent acts that in themselves are only accidentally related to the other. Our student selling her watch to get the cash she needs to buy food is performing two acts – she sells the watch, and then she eats food – which she accidentally relates to each other as matter and form. Therefore, we say that she sells the watch *so that* she can eat food. It is a complex act of two simple acts that are ordered to each other by the human agent as a means to an end. From a hylomorphic perspective,

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[64] *STh* I-II.18.7.

it is a complex act because the matter of the first simple act, which is the watch, is not apt to receive the form impressed upon it by the end, nutritious food, because the former is not ordered by nature to the latter.

In situations of complex acts like this, St. Thomas explains that the object of the interior act, i.e., the proximate end of the will, takes precedence over the object of the exterior act in specifying the actions of the human subject: "And therefore the species of a human act is considered formally according to the end, but materially according to the object of the exterior act. Hence the Philosopher says…that 'he who steals so that he may commit adultery, is essentially speaking, more adulterer than thief'."[65] Thus, our student who stole the PB&J is more "hungry-student" than thief. Notice, however, that St. Thomas is not saying that the adulterer is not a thief. He simply says that the adulterer is *more* adulterer than thief. Thus, in my view, for St. Thomas, there are two still two acts, an act of theft, and an act of adultery, though the former is ordered accidentally to the latter by the intellect. This relationship establishes a hierarchy between the two where the object of the rational appetite – having sex with someone other than one's spouse for the sake of pleasure – take precedence over the object of the locomotive power, the taking of another's property without his permission.[66] Lastly and once again, I emphasize that the human agent must first specify his exterior act of theft before he can discern its relationship to his end.

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[65] *STh* I-II.18.6: "Et ideo actus humani species formaliter consideratur secundum finem, materialiter autem secundum obiectum exterioris actus. Unde philosophus dicit…quod ille qui furatur ut committat adulterium, est, per se loquendo, magis adulter quam fur."
[66] Cf. *STh* II-II.18.7.

The Moral Specification of the Human Act and the Virtue of Prudence

What should be included within the object of the human act? In recent years, there has been much debate among Catholic moralists regarding those moral objects that are direct from those that are indirect, where the former are those objects that are intended and the latter are those objects that are not intended but only foreseen by the human agent. Germain Grisez, John Finnis, and Joseph Boyle have argued that the human agent and the human agent alone can properly specify the objects of his act.[67] It is the agent's self-description that is paramount in specifying his intentions because this is the only perspective that can take into consideration the complex interior acts that specify and qualify human action.

In response, I think that St. Thomas had it right when he noted that the human agent needs the virtue of prudence to act rightly. Prudence is the virtue that capacitates the human agent so that he is capable of taking good counsel, where counsel is about things that we have to do in relation to some end.[68] Prudence is that virtue that determines whether a particular act is in accord with right reason. It does this by appointing the mean in the passions and the operations of the human agent.[69] Thus, in specifying an act, a prudent individual would specify and evaluate the object of his act, and more precisely the hylomorphic principles of that object, i.e., the proximate end of

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[67] For details, see their essay, "'Direct' and 'Indirect': A Reply to Critics of our Action Theory," *The Thomist* 65 (2001): 1-44. For representative criticisms of their action theory, see Jean Porter, "'Direct' and 'Indirect' in Grisez's Moral Theory," *Theological Studies* 57 (1996): 611-632; and Kevin Flannery, S.J., "What is Included in a Means to an End?" *Gregorianum* 74 (1993): 499-513; and Matthew B. O'Brien and Robert C. Koons, "Objects of Intention: A Hylomorphic Critique of the New Natural Law Theory," *American Catholic Philosophical Quarterly* 86 (2012): 655-703.

[68] *STh* II-II.47.2.

[69] *STh* II-II.47.7 ad 2.

the will and the exterior act, as they engage not only the powers of the soul but also the moral virtues that form them:

> The end does not pertain to the moral virtues as though they appointed the end but because they tend to the end that is predetermined by natural reason. In this they are helped by prudence, which prepares their way, by disposing that which is ordered to the end, i.e., the means.[70]

To put it another way, the prudent individual morally specifies his act by describing his proximate end and his exterior act in a way that acknowledges that they necessarily engage each of the powers of his soul.

Therefore, in our example, a college student allergic to peanuts who says that her act is good because she does not directly intend her ill health when she knowingly eats a PB&J would be imprudent and unreasonable. She should have considered how her eating of the PB&J is beneficial or detrimental to her health because it engages her nutritive power. In truth, it is an evil act because it is imprudent, even if she says that she did not directly intend her ill health. In another disputed example, a surgeon who crushes an infant's skull who says that it is a good act because he does not directly intend the killing of the child would also be imprudent and unreasonable. He should have considered how his crushing of an infant person's head is a just or an unjust act with regard to the child because the child's skull engages his rational appetite, i.e., the will. In truth, therefore, a craniotomy is an evil act because it is an imprudent act even if the surgeon says that he

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[70] *STh* II-II.47.6 ad 3: "Finis non pertinet ad virtutes morales tanquam ipsae praestituant finem, sed quia tendunt in finem a ratione naturali praestitutum. Ad quod iuvantur per prudentiam, quae eis viam parat, disponendo ea quae sunt ad finem."

did not directly intend the death of the child.[71] It is not surprising, therefore, that for St. Thomas, the objects of the commanded powers of the soul are included under the object of the will as some particular good:

> The will moves the other powers of the soul to their acts, for we make use of the other powers when we will. For the end and perfection of every other power is included under the object of the will as some particular good since the art or power to which the universal end belongs moves to their acts the arts or powers to which belong the particular ends included in the universal end. Thus the leader of an army, who intends the common good, namely, the order of the whole army, by his command moves one of the captains, who intends the order of one company.[72]

In the end, the human agent – to be prudent – needs to evaluate and to include within the description of his exterior act, i.e., he needs to intend, all those circumstances of the act that engage the powers of the soul and the moral virtues that inform them.

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[71] As I have argued elsewhere, a craniotomy is also a gravely unjust act because it is unjust for anyone to amputate, mutilate, or dismember anyone else's body, let alone the body of a fetal child, unless the procedure is being done specifically for the welfare of that person. See my "The Injustice of a D&C or D&E Procedure to Resolve a Crisis Pregnancy," *National Catholic Bioethics Quartery* 15 (2015): 13-14.

[72] *STh* I-II.9.1: "Voluntas movet alias potentias animae ad suos actus, utimur enim aliis potentiis cum volumus. Nam fines et perfectiones omnium aliarum potentiarum comprehenduntur sub obiecto voluntatis, sicut quaedam particularia bona, semper autem ars vel potentia ad quam pertinet finis universalis, movet ad agendum artem vel potentiam ad quam pertinet finis particularis sub illo universali comprehensus; sicut dux exercitus, qui intendit bonum commune, scilicet ordinem totius exercitus, movet suo imperio aliquem ex tribunis, qui intendit ordinem unius aciei."

<u>Applying this Thomistic Theory of Action: The Act of Self-Defense</u>

To illustrate this Thomistic theory of action and of moral specification, I would like to apply it to the disputed question of self-defense that is discussed in the *Summa theologiae* (II-II.64.7). Before we do so, however, I will need to preface this analysis by first noting St. Thomas's absolute rejection of all killing of the innocent:

> An individual man may be considered in two ways. First, in himself; secondly, in relation to something else. If we consider a man in himself, it is unlawful to kill anyone, since in each one, even the sinner, we have to love the nature which God has made, and which is destroyed by slaying him. Nevertheless…the slaying of a sinner becomes lawful in relation to the common good, which is corrupted by sin. On the other hand the life of the righteous preserves and promotes the common good, since they are the chief part of the multitude. Therefore it is in no way lawful to slay the innocent.[73]

Though the killing of a criminal by the public authority can be justified to protect the common good, for St. Thomas, the deliberate killing of an innocent is always illicit. It is an act contrary to right reason because we are called to love every human being as made in the *imago Dei*. Or to put it more metaphysically, the innocent human being is not apt matter for the act of deliberate killing.

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[73] *STh* II-II.64.6: "Aliquis homo dupliciter considerari potest, uno modo, secundum se; alio modo, per comparationem ad aliud. Secundum se quidem considerando hominem, nullum occidere licet, quia in quolibet, etiam peccatore, debemus amare naturam, quam Deus fecit, quae per occisionem corrumpitur. Sed…occisio peccatoris fit licita per comparationem ad bonum commune, quod per peccatum corrumpitur. Vita autem iustorum est conservativa et promotiva boni communis, quia ipsi sunt principalior pars multitudinis. Et ideo nullo modo licet occidere innocentem."

Turning to self-defense in *STh* II-II.64.7, St. Thomas begins with a distinction: "Nothing hinders one act from having two effects, only one of which is intended, while the other is beside the intention (*praeter intentionem*)."[74] He continues with a definition of what is *praeter intentionem*: "Now moral acts take their species according to what is intended, and not according to what is beside the intention."[75] As we discussed above, however, moral acts are specified by their objects. For St. Thomas then, what is beside the intention (*praeter intentionem*) are those elements of the moral act that are not included in its object. We would call these the circumstances, properly so called. They are the unintended, i.e., falling outside the moral object, consequences of the act.

Returning to *STh* II-II.64.7, the article then moves to a full description of the moral specification of an act of self-defense:

> Accordingly the act of self-defense may have two effects, one is the preservation of one's life, while another is the killing of the aggressor. Therefore an act of this kind, coming from an intention to preserve one's life, is not unlawful, as it is natural to preserve oneself in existence as far as possible. And yet, an act even if it proceeds from a good intention may be rendered unlawful if it is out of proportion to the end. Therefore if a man, in preserving his life, uses more than necessary violence, it will be unlawful whereas if he repels the violence with moderation, it will be lawful.[76]

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[74] *STh* II-II.64.7.

[75] Ibid.

[76] Ibid.: "Ex actu igitur alicuius seipsum defendentis duplex effectus sequi potest, unus quidem conservatio propriae vitae; alius autem occisio invadentis. Actus igitur huiusmodi ex hoc quod intenditur conservatio propriae vitae, non habet rationem illiciti, cum hoc sit cuilibet naturale quod se conservet in esse quantum potest. Potest tamen aliquis actus ex

For a legitimate act of self-defense to obtain, therefore, St. Thomas teaches that the innocent victim needs to have the preservation of his own life as his end. Recall that the end in itself is the first of three sources of goodness in the human act.

In addition to choosing a good end, the innocent victim must also choose a good exterior act. Thus, he must also choose a particular exterior act that is proportionate to attaining this end. But what does it mean to say that the exterior act as a means is proportionate rather than disproportionate to the end? Later in the response, St. Thomas will add:

> Nor is it necessary for salvation that a man omit the act of moderate self-defense in order to avoid killing the other, for one is obliged to take provide for one's own life more than for another's. However, as it is not lawful to kill a man, except by a public authority for the common good, it is unlawful for a man to intend to kill another in self-defense, unless he is a public authority who, while intending to kill a man in self-defense, refers this to the public good, as a soldier fighting against the foe and a minister of the judge fighting against robbers do. Even these individuals, however, sin if they are moved by private animosity.[77]

bona intentione proveniens illicitus reddi si non sit proportionatus fini. Et ideo si aliquis ad defendendum propriam vitam utatur maiori violentia quam oporteat, erit illicitum. Si vero moderate violentiam repellat, erit licita defensio."

[77] Ibid.: "Nec est necessarium ad salutem ut homo actum moderatae tutelae praetermittat ad evitandum occisionem alterius, quia plus tenetur homo vitae suae providere quam vitae alienae. Sed quia occidere hominem non licet nisi publica auctoritate propter bonum commune…illicitum est quod homo intendat occidere hominem ut seipsum defendat, nisi ei qui habet publicam auctoritatem, qui, intendens hominem occidere ad sui defensionem, refert hoc ad publicum bonum, ut patet in milite pugnante contra

This text suggests that a proportionate act of self-defense is one that can save one's life without necessarily killing one's assailant. If several means were available to the innocent victim, for example, it would involve his choosing the least lethal means that could still effect the saving of one's life. (Note that the chosen means could still be lethal means if those are the only means available to the victim, since St. Thomas does not rule out the *praeter intentionem* slaying of the attacker in a legitimate act of self-defense.) This is the goodness of the exterior act determined "in respect of due matter and circumstances," which is the second source of goodness of a human act. Additionally, an act of self-defense is an act where the death of the assailant is never desired by the innocent victim's will even as a means to saving his life. It can only be ordered towards the preservation of one's own life. This is the goodness of the act determined "in respect of the order to the end," which is the third source of goodness of a human act. Otherwise, the act's specification would be altered from an act of self-defense to an act of voluntary manslaughter, if it killed the attacker. In the end, an act of self-defense needs to be good in the fullness of its being.

Finally, to restate St. Thomas's teaching, if the means were proportionate to the end, then the act of the innocent victim would remain a simple act where the exterior act is essentially ordered towards the end of preserving one's life. It would be a legitimate act of self-defense. In contrast, if the means were disproportionate to the end, then this act would be a complex act where the exterior act would be an act of voluntary manslaughter now ordered only accidentally to self-preservation. This exterior act in itself would be

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hostes, et in ministro iudicis pugnante contra latrones. Quamvis et isti etiam peccent si privata libidine moveantur."

contrary to right reason and would be inherently disordered regardless of the further legitimate end to which it was directed.

Objections to this Thomistic Theory of Action: Fr. Martin Rhonheimer

To further deepen our analysis of moral specification in St. Thomas, we now consider objections to the Thomistic theory of action outlined in this chapter. Here, I will describe and respond to the criticisms proffered by two contemporary Thomists, Fr. Martin Rhonheimer and Steven A. Long. Rhonheimer is representative of those moralists today who emphasize the primacy of the end in the moral specification of a human act, while Long is representative of one of two groups of moral theologians opposed to this view.[78]

First, we consider Fr. Rhonheimer's objections. Rhonheimer has written numerous works over the past twenty years describing his Thomistic theory of action.[79] For the purposes of this dissertation, I will focus on his most recent restatement and

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[78] Fr. Stephen Brock, Fr. Lawrence Dewan, O.P., Steven Jensen, and I, are representative of the other group of Rhonheimer's critics.

[79] For example, see the following books and essays: *The Perspective of the Acting Person* (Washington DC: Catholic University of America Press, 2008); *Vital Conflicts in Medical Ethics: A Virtue Approach to Craniotomy and Tubal Pregnancies* (Washington, D.C.: Catholic University of America Press, 2009); *The Perspective of Morality* (Washington, D.C.: Catholic University of America Press, 2011); and "'Intrinsically Evil Acts' and the Moral Viewpoint: Clarifying a Central Teaching of *Veritatis Splendor*," *The Thomist* 58 (1994): 1-39; "Intentional Actions and the Meaning of the Object: A Reply to Richard McCormick," *The Thomist* 59 (1995): 279-311; "The Perspective of the Acting Person and the Nature of Practical Reason: The 'Object of the Human Act' in Thomistic Anthropology of Action," *Nova et Vetera* 2 (2004): 461-516; "On the Use of Condoms to Prevent Acquired Immune Deficiency Syndrome," *National Catholic Bioethics Quarterly* 5 (2005): 37-48; "A Nonexisting 'False Theory'," *National Catholic Bioethics Quarterly* 9 (2009): 11-16.

defense of his views.[80] This essay has the added advantage in that it is an extensive work that explicitly considers and responds to the alternative accounts of St. Thomas's action theory proposed by Rhonheimer's critics, including the work of Steven Jensen, who holds to a reading of St. Thomas similar to the one reconstructed in this chapter.

For Rhonheimer, the moral specification of a human act must be done from the perspective of the acting person. Thus, in his view, "[w]hat we are looking for, then, when we talk about the 'moral object,' is what specifies human acts, considered as acts that proceed from a deliberate will."[81] Therefore, he concludes, "what is called the 'moral object' must be some form of 'good' that is an end for the choosing will and is embodied in the act proceeding from it. The good a human act aims at, gives that act a definite moral species."[82]

To illustrate his theory, Rhonheimer describes the moral specification of an act of killing a man:

> What, morally considered, is the physical act of "killing a man"? It may be a homicide, an execution of capital punishment, a killing in a just war, an act of self-defense: these acts, physically identical and all involving the physical killing of a human being, have nonetheless different moral species according to their objects. They are not in each case the same human act, simply carried out for different (further) ends; rather they are already

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[80] Martin Rhonheimer, "The Moral Object of Human Acts and the Role of Reason According to Aquinas: A Restatement and Defense of My View," *Josephinum Journal of Theology* 18 (2011): 454-506. [Though included in an issue originally slated to appear in 2011, this essay was actually published in 2013.]

[81] Ibid., p. 456.

[82] Ibid.

different kinds of human acts at the level of their most basic moral

specification, by their objects.[83]

What is clear from this text is that for Rhonheimer, the moral object is the proximate end

which specifies the human act. In his own words, "the morally specifying object of human

acts is 'the end of a deliberately willed act' or 'the end of an act proceeding from deliberate

will'."[84] Later he will emphasize the role of reason in the moral specification of the object:

"This is Aquinas's constant teaching: reason is the measure of the goodness of human

acts…Reason 'conceives' the object. This is also why Aquinas says: 'Just as the species of

natural things are constituted by their natural forms, so the species of moral actions are

constituted by forms as conceived by the reason' [*STh* I-II.18.10]." For Rhonheimer, in

the moral order, the exterior act cannot be grasped properly by reason unless it is

conceived as an end. The end specifies both the exterior act as a part, and the human act

as a whole.

Rhonheimer raises at least three major conceptual objections to Thomistic

theories of action like the one described in this chapter. First, he distinguishes his own

account from Jensen's and Dewan's accounts – two readings of St. Thomas which belong

to the same family of theories as the one described in this chapter – by claiming that his

Thomistic theory properly equates objects to acts and not to things, an error he attributes

to his critics:

Jensen himself – like Dewan, to whom he refers – focuses on my view that

moral objects are not the things that actions relate to (for example,

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[83] Ibid., p. 458.
[84] Ibid., pp. 457-458.

"another person's watch," "a man or woman who is not my spouse,") but acts relating to these "things" (e.g. "appropriating another person's watch," "having sexual intercourse with a man or woman who is not my spouse"). So in my view, the object that makes a given action fall under the moral species of "theft" is "appropriating another person's property"; and the object that makes an action fall under the moral species of "fornication" (or if the person is married "adultery") is "having sex with a person I am not married to." Thus, according to my view, the object is what is called the "exterior act," that is, the act that is chosen and commanded by the will for the sake of the good it realizes; which is, therefore, itself the object of the so called "interior act" of the will.[85]

This alternative view, according to Rhonheimer, is erroneous because "to attribute to 'things' a kind of goodness that is able to specify human acts morally is simply untenable. On this account, stealing a car would be a morally good action provided a car is something good; in fact, the better the car, the better and more praiseworthy the act of stealing it would become."[86] Therefore, he concludes that acts and not things must be the object of the moral act: "(1) the human act, as *proceeding from deliberate will* is morally specified by (2) the exterior act *presented to the will* as a 'good apprehended and ordered by reason'."[87]

In response, Rhonheimer is correct when he claims that the exterior act is the moral object of the human act. As we discussed above, the exterior act understood as a

[85] Ibid., p. 461.
[86] Ibid., p. 463.
[87] Ibid., p. 466. (original emphasis).

good apprehended and ordered by reason is indeed one of the two proper objects of the will that hylomorphically constitute the object of the act. However, *pace* Rhonheimer, I have argued that the exterior act cannot be presented to the will by the intellect unless it is first specified in itself as an intelligible good. As St. Thomas explains: "The exterior action is the object of the will, inasmuch as it is proposed to the will by the reason, as good apprehended and ordained by the reason."[88] Moreover, I have proposed that this specification of the exterior act is accomplished by the intellect, not by examining its relationship to the end, as Rhonheimer proposes, but by examining its relationship to its terminus, which is its matter. In our example, eating a PB&J is distinguished from eating a cheeseburger by the term of the act of eating, the kind of sandwich involved, and not by the proximate end, the nutritious food that will satiate the agent's hunger, which attracts the will. If Rhonheimer's proposal were true, i.e., if an exterior act is distinguished only with reference to the end of the acting person, then the two exterior acts considered by our hungry student during her deliberation would be indistinguishable from each other. They would both be specified as the same exterior act, the act of eating nutritious food.[89] Including a description of the exterior act specified by its matter in the moral object allows the intellect to present the exterior act to the will precisely as this intelligible good rather than that one. As St. Thomas explains, "[w]hen many actions, differing in species,

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[88] *STh* I-II.20.1 ad 1.

[89] In the same way, the act of conjugal love – having sexual intercourse with one's spouse – is distinguished from the act of fornication – having sexual intercourse with someone other than one's spouse – by the term of the sexual act, and not by the end, which could be a pleasurable good or a reproductive good, among other attractive intelligible goods. If Rhonheimer's insistence that human actions must include an intention for some end beyond what is contained in the description of the exterior act were true, then both of these sexual acts could simply be described as having sex with another for pleasure.

are ordained to the same end, there is indeed a diversity of species on the part of the exterior actions; but unity of species on the part of the internal action."[90] In our example, our student has chosen to eat a PB&J, and not just to eat nutritious food.

With this distinction in place, I would adjust Rhonheimer's definition of the moral object of the human act as follows: The human act as proceeding from deliberate will is morally specified by a *specified* exterior act presented to the will as a good apprehended and ordered by reason. In my view, this is a restatement of St. Thomas's claim, already discussed above, that the exterior act is specified as good or evil "in respect of due matter and circumstances" and "in respect of the order to the end."[91] The former involves the moral specification of the exterior act in itself, and the latter involves the moral specification of the exterior act with respect to the agent's motives. Both have to be good for the object to be good because both are willed by the will in executing the act. In our example, the moral object is the eating of a PB&J as nutritious food. This is good. In contrast, knowingly eating a stolen PB&J as nutritious food, or knowingly eating a PB&J as poisonous food, would be contrary to right reason. These are different evil acts whose repugnance to right reason is determined in different ways by the two distinct sources of goodness and malice in the exterior act, where the former act has a defect in the goodness of the exterior act and the latter has a defect in the goodness of the end.[92] This is why St.

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[90] *STh* I-II.18.6 ad 3.

[91] *STh* I-II.20.2. Indeed, even though, Rhonheimer explicitly cites this text from St. Thomas that identifies a twofold goodness or malice in the exterior action ("The Moral Object of Human Acts," pp. 467-468), it is striking that he does not include a discussion of these two sources of good or evil in the exterior act within his Thomistic theory of action. An accurate reconstruction of St. Thomas's teaching would have to do so.

[92] Rhonheimer cites Fr. Servais Pinckaers, O.P., as someone who would advocate his reconstruction of St. Thomas's theory of action, when Pinckaers writes: "But it would be a

Thomas can conclude: "Someone sins by his will, not only when he wills an evil end, but also when he wills an evil act."[93]

Next, Rhonheimer is critical of theories – like the one in this chapter – that posit that there are two moral objects, the object of the interior act of the will, and the object of the exterior act, "which would be the 'thing' to which this act relates or in which it terminates."[94] He argues that the existence of two moral objects would undermine the integrity and identity of a human act:

> Provided the moral object is what primarily and fundamentally gives the moral species to a human act, there cannot be two (or multiple, as at least one of these critics claim) moral objects. This is impossible in the same way as a being cannot have two substantial forms and a living organism cannot have two souls; because substantial forms establish a determinate being's or a determinate organism's species. The same applies to the fundamental specification of human acts: on the level of its primary and

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mistake to stop there, since the moral act only exists fully in its existential duality of interior act-exterior act; a moralist's judgment would remain seriously incomplete if he were to neglect the contribution of the personal interior act." ("The Moral Object of Human Acts," p. 481). I disagree with Rhonheimer's assessment. In this text, Pinckaers emphasizes the need for *both* the end and the specified exterior act in the moral specification of the human act. In contrast to those moralists who neglect the interior act – properly criticized by Pinckaers – Rhonheimer makes the complementary error when he neglects the fullness of the exterior act that is distinguished by its matter and morally specified by two sources of goodness and malice.

[93] *STh* I-II.20.2 ad 2: "Non solum aliquis voluntate peccat, quando vult malum finem; sed etiam quando vult malum actum."

[94] Rhonheimer, "The Moral Object of Human Acts," p. 472.

fundamental specification it cannot simultaneously belong to two different species.[95]

Like St. Thomas, Rhonheimer is opposed to any theory that posits the plurality of forms in a substance, in the natural order, or in a human act, in the moral order.

In response, Rhonheimer is correct when he affirms that a human act must be specified by a single moral object. However, though he does acknowledge the formal and material aspects of the moral object[96], he fails to appreciate the full ramifications of the hylomorphic framework for St. Thomas's theory of action. For Rhonheimer, the form of the moral object is the formality of intelligible good that makes it desirable, while its matter is the exterior act in itself, understood as the moral object desired by the will. Thus, in his view, the moral object of an act of theft – and thus its matter – is "the appropriation of another's possession," while the motive for the act of theft – and thus its form – is the thief's desire to possess it:

> Ralph McInerny, commenting on the same passage of the *Summa*, simply states: "The object of the action is that which the agent sets out to do, to effect." This, of course, is the *appropriation* of another's possession. The formal aspect of the object, the *ratio* of its being good (to be chosen), is not the "being another's" because the thief does not steal *because* a thing is another's; the rationale of his desiring it is not its being another's property,

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[95] Ibid.
[96] Ibid., pp. 482-489.

but to appropriate, to possess and use it. This, therefore, is the object *formally* considered.[97]

As we will discuss in greater detail below, the fatal difficulty with this explanation is that it is unable to distinguish similar acts undertaken for the same intention. It cannot distinguish appropriating another's PB&J to possess it, from appropriating another's cheeseburger to possess it. In contrast, as we discussed above, the two objects of the will, the end, and the specified exterior act, come together as form and matter to constitute a single moral object that specifies the human act. This added complexity allows the human agent to properly describe what he is doing with respect not only to the commanded act but also to the proximate end as well. Thus, in one scenario the student is stealing a hamburger (specified exterior act) to possess it (end), while in the other the student is stealing a cheeseburger (specified exterior act), also to possess it (end). Though this difference may not appear significant here, there are cases where the distinction becomes morally probative. Consider the two acts: A student knowingly eats a PB&J (specified exterior act) to nourish herself (end), and a student knowingly eats cyanide (specified exterior act) to nourish herself (end). Here the difference in specified exterior acts is incredibly important, lethally so! The former act is good, while the latter is evil (though we would have to wonder if the second student was either ignorant of the nature of cyanide or duplicitous about her true intentions in wanting to consume it.[98]) In his

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[97] Ibid., pp. 486-487 (original emphasis).

[98] In an earlier essay, I noted that the human actions of reasonable agents have a narrative intelligibility to them. Including the specified exterior act within the moral object of the human act allows us to properly appreciate this intelligibility, or lack of it! It acknowledges that human agents meticulously undertake a means to end analysis that presupposes knowledge of the causal relationships of things with specified natures. For

theory, Rhonheimer conflates what needs to be distinguished for any accurate description of human action.

Finally, Rhonheimer argues, "if the exterior act had its own species-giving object – a 'thing' – which would precede the apprehension and ordering of reason, then we could no longer say, with Aquinas, that the morality of human acts is determined *by reason*. Nor would it be possible to accept Thomas's teachings that reason is the measure of the goodness of human acts or that it presents the exterior act as 'a good apprehended and ordered by reason'."[99] Significantly, he claims, "[o]ne could not hold these Thomistic doctrines, since the exterior act is already thought to be morally specified by the 'obje[c]t of the exterior act'; thus, such an apprehension and ordering by reason would be entirely superfluous, simply 'arriving too late'."[100]

In response, Rhonheimer is correct to affirm the crucial role of the intellect in the moral specification of the human act. As we discussed above, the intellect does have this role in St. Thomas's theory of action as we have reconstructed it in this chapter. However, Rhonheimer does not properly appreciate that the intellect can only apprehend the exterior act and present it to the will as an intelligible good, i.e., after it has been specified in itself. The role of object of the exterior act, i.e., its matter, is to specify it as this kind of exterior act rather than that kind of exterior act. This is an act of the intellect as it seeks to understand the exterior act. The goodness or malice of the exterior act is then morally specified, as St. Thomas explains, in reference to itself, i.e., "in respect of due matter and

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details, see my "On Reshaping Skulls and Unintelligible Intentions," *Nova et Vetera* 2 (2004): 81-100. In a way I did not see before, I now understand that this analysis presupposes and involves the virtue of prudence.
[99] Rhonheimer, "The Moral Object of Human Acts," p. 472 (original emphasis).
[100] Ibid.

circumstances," and in reference to the agent's intention or motivation, i.e., "in respect of the order to the end." This too is an act of the intellect as it examines the act of the will that has related this particular exterior act to this particular end. This is why St. Thomas will say in the already much cited quote regarding the two-fold goodness of the exterior act [my emphasis]: "And that which is in respect of the order to the end, *depends entirely on the will*: while that which is in respect of due matter or circumstances, *depends on the reason*: and on this goodness depends the goodness of the will, in so far as the will tends towards it."[101] It is inaccurate therefore for Rhonheimer to claim that for theories like the one described in this chapter, "[t]he morally specifying object of the will would be simply and directly that supposed 'object of the exterior act'."[102] Rather, the morally specifying object of the will is the *specified* exterior act that has been apprehended and distinguished by the intellect as an intelligible good. The theory described here is neither a physicalist nor an intentionalist account. It is a realist one.

In sum, none of Rhonheimer's objections are lethal blows to the Thomistic account of moral specification described here. Moreover, an examination of these objections reveals at least two major lacunae in his own reading of St. Thomas. First, his theory is not able to account for St. Thomas's claim that there are two sources of good or evil for the exterior act and that these are important for the moral specification of the human act as a whole (cf. *STh* I-II.20.1). Second, Rhonheimer's theory is not able to distinguish similar acts like eating a PB&J and eating a cheeseburger undertaken for an identical proximate end, i.e., for the same motive. It is not able to specify acts that have

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[101] *STh* I-II.20.2.
[102] Rhonheimer, "The Moral Object of Human Acts," p. 472.

been specified from the perspective of the acting person: Our student had to distinguish eating the PB&J from eating the cheeseburger before she could decide which one she would do as a means towards attaining her end of satiating her hunger with nourishing food. An accurate reconstruction of St. Thomas's theory, indeed, of any true theory of the structure and the moral specification of the human act, would have to do both of these things.

Objections to this Thomistic Theory of Action: Steven A. Long

Moving to Professor Steven Long's objections. Like Rhonheimer, Long has an extensive bibliography of work dedicated to Thomistic action theory. I have chosen to focus on two, his book, *The Theological Grammar of the Moral Act*, which is his most extensive discussion of his action theory[103], and a more recent essay published in *Nova et Vetera*, "Engaging Thomist Interlocutors," where he responds to criticisms of his account, including criticisms from other scholars who hold to a reading of Thomistic moral specification similar to the one described in this chapter.[104]

Unlike Rhonheimer, Long affirms the hylomorphic structure of the moral object in a manner similar to the theory described here. The moral object is one composed of a formal component, which he calls the act's "relation to reason, which is to say that which makes an act choiceworthy to the agent," and a material component, which he describes as "the act itself and its integral nature."[105] He explains – correctly in my view – that one

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[103] Steven A. Long, *The Teleological Grammar of the Moral Act* (Naples, FL: Sapientia Press, 2007).
[104] Steven A. Long, "Engaging Thomist Interlocutors," *Nova et Vetera* 9 (2011): 267-295.
[105] Long, *Teleological Grammar*, p. 12.

must include the integral nature of the act, what I have called "the specified exterior act," into the moral object because not doing results in the reducing the object to the intention of the agent as he arbitrarily chooses to describe it:

> [S]ince the relation to reason is chiefly a relation to the end in relation to which the agent finds an act choiceworthy, by reducing the object to the relation reason, we reduce absolutely everything to the end principally sought by the agent…Were this to be true, then the object of the act could be altered merely by *redescribing* the act performed: "I'm not really strangling a child to death, I'm preventing dynastic civil war."[106]

For Long, the moral object must consider and include the specified exterior act in the moral specification of the human act.

Long raises a single conceptual objection to Thomistic theories of action like the one described in this chapter. But it is a significant one! In his view, for simple acts – recall that these are acts where the object of the exterior act, which is its matter, is ordained *per se* to the object of the interior act, which is the end – the goodness or malice of the act as a whole is determined not by its matter and the end together, but by the end alone: "[W]hether the end sought by the agent is the good and proper end, or is defective owing to the unrectified appetite of the agent, the determination of moral species *requires* that we understand the teleological relation of the object and end. For only in the case wherein the object is naturally, essentially, *per se* ordered to the end, is the most formal, containing, and defining species derived from the end."[107] Or again: "According to the

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[106] Ibid., p. 15. (original emphasis).
[107] Ibid., pp. 27-28.

teaching of St. Thomas Aquinas, we cannot so much as determine the moral species of an action unless we first know the answer to this question: is the object of this action naturally ordered to the end? If the object is ordered to the end then, whatever else may ensue on the part of the object, we will know that the most defining species is derived from the end willed."[108]

To support his reading of St. Thomas, Long makes two arguments, an exegetical one and a pragmatic one. First, based upon a textual analysis of numerous passages in the *Summa*, especially *STh* I-II.18.7 and *STh* II-II.64.7, he claims that for St. Thomas, intention is chiefly of the end, and as such, it is the end and not the exterior act that specifies. Briefly, the dispute between Long and his Thomist interlocutors over the proper understanding of St. Thomas's teaching in *STh* I-II.18.7 regards the proper relationship between a genus and its species in the moral order. Usually, the specific difference that distinguishes things of different natural kinds is thought of as most formal and therefore most determinative in the natural order. For example, as a rational animal, the human being is defined by the specific difference, being rational, and not by the formal difference, being an animal. Therefore, Kevin Keiser and Steven Jensen have argued that the object of the exterior act most properly gives species, because it is the object that confers the specific difference in an act.[109] In our example, the PB&J distinguishes an act of eating a PB&J from an act of eating a cheeseburger, both of which are acts of eating nutritious food.

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[108] Ibid., p. 30.
[109] Kevin Keiser, "The Moral Act in St. Thomas: A Fresh Look," p. 277; and Steven Jensen, *Good and Evil Actions: A Journey through St. Thomas Aquinas* (Washington, D.C.: The Catholic University of America Press, 2010), pp. 268-269.

In response, Long argues that what is true in the natural order – that the specific difference is more determining than the formal difference – is reversed in the moral order:

> Normally, that which is formal is viewed as most defining, and as the specific difference derives from the form, we think of the specific difference as "most formal" and most actualizing. Thomas does not deny any of this here. But he does re-direct the intelligence, in a way that he often does with respect to the difference between understanding natural moral order and understanding the nature of substances.[110]

Citing St. Thomas in *STh* I-II.18.7 ad 3, Long argues that "the genus is *more formal* than the species, inasmuch as it is more absolute and less contracted – it is not limited merely to any particular specific modality."[111] Thus he concludes:

> Now, in moral order, in the case wherein the object is per se ordained to the end, the *most formal* (this is expressly St. Thomas's designation) species, which is also the most containing (as Thomas puts it in his respondeo, "*Unde una istarum specierum continebitur sub altera*," and he makes quite clear that it is the species derived from the object that is contained by the species derived by the end), is derived from the end.[112]

As justification for this reading, Long notes that in a *per se* ordering, the end acts as final cause that adds a further perfection to the exterior act:

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[110] Long, "Engaging Thomist Interlocutors," p. 284.
[111] Ibid., p. 286.
[112] Ibid.

Insofar as object is per se ordered toward end, the supremacy of the end is precisely what is reflected even in the further determination of the species derived from the object, for the added quantum of perfection, determinacy, and act reflected in that species is wholly for the sake of the end and is contained within the most formal species derived from it, as reflecting the optimal path of the agent to the end. In the case of per se order, everything that constitutes the added determinacy and act of the species derived from the object vis-à-vis the species derived from the end, exists for the sake of the end and as interiorly ordered to it and proceeding from its intention.[113]

In sum, for Long, the end and the end alone specifies a simple act regardless of the goodness or malice of the object, as long as the object is in a *per se* ordering to the end.

Next, Long makes a pragmatic argument using several examples to illustrate his claim that the end specifies a simple act. Using a clinical example in support of his claim, he writes:

In the case of surgery, accordingly, we do not say that there are two simple acts with two distinct moral species: We do not say that first there is an act of opening the chest cavity (with the moral species of butchery) followed by an act of surgery (with the moral species is that of a medicinal or healing act)—but only one act, with one medicinal species…Since the end is medical, and since the object is naturally ordered to it (in this instance, naturally ordered in the sense that absolutely speaking one cannot gain

[113] Ibid., p. 287.

access to the heart for the purposes of surgical repair without opening the chest cavity), the most formal species is derived from the end, and the moral species derived from the object is contained within the species of the end, that is, this opening of the chest cavity is *medical*.[114]

Long also uses several examples of self-defense in support of his theory. To appreciate these scenarios, we need to briefly summarize Long's reading of St. Thomas's text that we have already discussed above (*STh* II-II.64.7). For Long, the innocent victim may deliberately choose lethal means precisely as lethal means to attain his end of moderate self-defense. This obtains, according to Long, because the end – moderate self-defense – specifies the goodness of the exterior act even if that exterior act involves lethal means deliberately chosen as such in itself:

> Because the act itself and its integral nature are always included in the object of the moral act, we must say that this is indeed a lethal act, but because the lethality here is chosen under the *ratio* of defense, to which it is *per se* ordered, the most formal, defining, and containing moral species is derived from the end. Hence we say this is fundamentally a *defensive act* and the difference (accidental with respect to this fundamental species from the end) which is introduced by the object is: homicidal or lethal: this is a defensive homicide.[115]

As an example, Long explains that the lethal shooting of an axe-bearing felon in the head just as he is about to decapitate one's child is a justifiable act. To give this case more force,

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[114] Long, *Teleological Grammar*, p. 28. (original emphasis).
[115] Ibid., p. 50.

he further stipulates that in this scenario, "none other but a shot to the head will so incapacitate the nervous system as to assure that the axe does not slay or maim one's daughter" and that "one knows that such a shot to the head is by its nature, *per* se, ordered to kill."[116] Despite these conditions, according to Long, this killing is still a justifiable act of self-defense, a defensive homicide. In response to those who would deny his theory of moral specification, Long claims that contrary accounts of moral specification, including the reading of St. Thomas described in this chapter, would deny the commonsense moral intuition that one can shoot an assailant in the head to save one's self.

In response, I have to admit that I hesitate to participate in an exegetical dispute over the proper reading of a single article in St. Thomas's corpus, especially a text that involves a potential inversion, as Long would have it, of the standard rules of logic. From my experience as a scientist, it is hard to argue for or against any theory, including a theory of textual interpretation, with a single data point. However, I do want to bring up the additional text – a critical text to which I have already referred – as an additional data point to help us draw a line. Recall that St. Thomas teaches the following: "[W]e may consider a twofold goodness or malice in the exterior action: one in respect of due matter and circumstances; the other in respect of the order to the end."[117] In my view, Long's account – ironically, like his opponent, Rhonheimer's – focuses solely on the second source of goodness, i.e., its relationship to the end. As I said in my *respondeo* to

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[116] Ibid.
[117] *STh* I-II.20.2.

Rhonheimer, any accurate reconstruction of St. Thomas's theory needs to bring both sources of goodness into view.

To illustrate how we can do this, let us return to Long's clinical example. In his view, this example supports his theory that the end alone specifies a simple act. Otherwise, according to Long, the act of opening the chest cavity during an open-heart surgery would be specified as an act of butchery, putting it immediately under negative precept. Clearly this cannot be true.

In response, as I pointed out above, the human agent can only discern the relationship between the object of the exterior act and the end, if he has already specified the exterior act in itself. Thus, in my view, a surgeon would have to specify his exterior act in itself first without referring to the end. Furthermore, I do not think that the surgeon would specify his exterior act as Long would have him do it. Indeed, I do not think that any reasonable person observing a surgeon opening up his patient's chest cavity would specify that act as an act of "opening the chest cavity"! Rather, he would specify it as the "opening the chest cavity of a patient by his surgeon." This specification includes circumstances "of a patient" and "by his surgeon" that, in my view, properly and necessarily participate in the specification of the exterior act. As such, they are not circumstances properly so called but constitutive elements of the act's object. Long himself acknowledges that circumstances can specify: "[M]orally, a circumstance can introduce a new object, because the object is *what the act is about in relation to reason*,

and by way of the circumstance's direct effect on what the act is about in relation to reason, it can change the objective nature of the act."[118]

Thus, the act of the surgeon would never be specified as an act of butchery as Long would have it. It is specified precisely as an act of thoracic surgery, described as the act of opening the chest cavity of a patient by his surgeon, that is further ordered towards the end of healing. It is a simple act where the exterior act is *per se* ordered towards healing. Therefore it is a medicinal act that is in accord with right reason. (Note that an act of thoracic surgery, though good in itself, could be further ordered towards the death of the patient by a malicious surgeon. This would be an act of murder that is repugnant to right reason where the defect obtains because of a disorder in the exterior act's relation to the end.) In my view, all simple acts can be analyzed and specified as I have just done because exterior acts can be specified as good or evil in themselves, as St. Thomas teaches, "in respect to due matter and circumstances." Notice that with this reading, simple acts are still specified by the end – as Long would claim from his reading of *STh* I-II.18.7 – but only after the exterior act has been determined in itself (cf. *STh* I-II.20.2), a judgment that has to be undertaken before the intellect can determine if it is ordered *per se* or *per accidens* with regards to the end. Two texts justify an interpretation. Two points specify a line.

In my view, Long falls into error, because he ignores the common everyday experience of human agents who have to evaluate the morality of all of their exterior acts in themselves, even when they are executed within the context of a simple act. Returning to Long's example of the surgeon. During the planning of a surgery to effect the healing of

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[118] Long, "Engaging Thomist Interlocutors," p. 285. (original emphasis).

the patient, a surgeon considers all the possible surgical interventions that he could undertake to effect a particular cure. Simplistically, he could ask himself: Should I open the chest cavity at the level of the third or of the fourth rib? (Notice that he is specifying each possible surgical act by distinguishing the matter of one act from the matter of another act, where the matter is that reality upon which the commanded powers of the soul act.) In doing so, however, he inevitably evaluates each for its goodness or for its malice, not only in itself – is this surgical act a good act? – but also in relation to the end – will this surgical act heal my patient? This is how he decides what he is going to do in the operating room. This is why a reasonable surgeon would never consider using a chainsaw during surgery! It may open the chest cavity, and it may even bring about the healing of the patient (because it allows the surgeon to correct the valve defect,) but it would be messy! It would be messy in itself. It would lack the fullness of being. It would be evil. All things being equal, a human chest is not apt matter for being acted upon by a chainsaw.

Turning now to Long's argument involving the moral specification of acts of self-defense. As I described above, for a legitimate act of self-defense to obtain, St. Thomas teaches that the innocent victim needs to have the preservation of his own life as his end. He must also choose a particular exterior act that is proportionate to attaining this end. Moreover, according to my reading, the text suggests that a proportionate act of self-defense is one that can save one's life without necessarily killing one's assailant, though the chosen means could still be lethal means since St. Thomas does not rule out the *praeter intentionem* slaying of the attacker in a legitimate act of self-defense. However, what distinguishes my account from Long's theory is that I believe that for St. Thomas, an act of self-defense is an act where the death of the assailant is never included within the

moral object of the innocent victim's will. Thus, I think that it is legitimate for an innocent victim to shoot his assailant in the head with a .45 Magnum if that were the only weapon available to him and if that were the only thing that he could do at that particular moment to save his own life. However, I would add that the innocent victim would not and could not deliberately intend the death of his assailant as a means of warding him off.

Long is critical of this account because he believes that this account involves a slight-of-hand re-description of an act of defensive homicide that is "deeply confused and indeed, taken as an account of some uncontrovertibly moral defensive killings, simply contrary to fact."[119] For Long, there are clear cases where essentially lethal means are chosen precisely as lethal because there are no other means available. In these cases, he is convinced that one's choice of these means necessarily involves including the death of one's assailant, and that to say otherwise, is "a simple re-description of the act which could risk certain of the implications of intentionalism to which Fr. Dewan's [who holds to a reading of St. Thomas similar to the one described in this chapter] analysis is on the whole opposed."[120] He argues that permitting this type of re-description would open the Pandora's box of moral specification unhinged from any anchor in reality:

> Why, for instance, ought not the HIV spouses using condoms to say: We
> do not intend to contracept, but only to protect a spouse from viral
> contamination without sparing the material occurrence of contraception?
> Just as one might say: We do not intend to kill, but only to defend
> ourselves without sparing the material occurrence of killing?

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[119] Long, "Engaging Thomist Interlocutors," p. 274.
[120] Ibid., p. 276.

Long counters this dangerous perspective by once again noting that "sed contra: the integral nature of the act and its per se effects are included in the object."[121] Thus, he concludes:

> It seems to me that for St. Thomas, the matter of the act—its integral nature and per se effects—are always included in the object of the moral act. Hence, some defensive acts are defensive homicides, and some of these homicides are purely accidental, and some are actually chosen under the ratio of defense. These defenses do not happen without choice: that is certainly in the order of fact. And it is also, I believe, incontrovertible that some defenses can be made only through lethal means. Since these lethal means do not apply themselves to act, they must be chosen. The ratio of the choice is defense, but the lethal act is chosen.[122]

For Long, the choice of lethal means as one's exterior act necessarily leads to one's choosing the death of one's assailant. Otherwise, this would lead to a theory of action that is intentional in its perspective and as such open to subjective re-descriptions that are not constrained by reality.

In response, Long is correct to reject an intentionalist account of human action that specifies acts solely by reference to the end that is intended. But does this rejection necessarily entail the negation of the reading of St. Thomas described here? I do not think so. Consider the case of the innocent victim who shoots his assailant in the head with a .45 Magnum, the only weapon available to him at the time. Long imagines that this is a

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[121] Ibid.
[122] Ibid.

person who has gone through a process of deliberation that can be described as follows: "Someone is going to kill me. I need to stop him. I only have this .45 Magnum to stop him. I cannot shoot him anywhere but in the head. However, I know that shooting him in the head will kill him. But that is the only way for me to save my life. I know that I will kill him, but I will shoot him." The victim shoots.

I dispute this analysis. I do not think that it is realistic. Consider two alternative scenarios. First, consider the following monologue from the perspective of the acting person who is being attacked by an unjust assailant: "Someone is going to kill me. I am scared. I am frightened. I do not know what to do. He is getting closer. I am going to die. Here is a gun. I can use it to stop him. I will shoot him." The victim shoots. Next, consider this alternative monologue: "Someone is going to kill me. I have shot him in the leg. He is still coming. I have shot him in the chest. He is still coming. He is going to kill me. I have to shoot him in the head. That is the only way I will be able to stop this berserker." The victim shoots.

Long presupposes that the choosing of lethal means necessarily means that one has chosen to deliberately will the death of one's assailant, including his death in the object of the exterior act. However, as I tried to indicate in my victim's alternative monologues, I do not think that this is the case. In a highly charged and emotional scenario – a scenario of self-defense when one's life is threatened by another certainly qualifies as such a case – I claim that it is reasonable to think that a victim can choose whatever means is available to stop the attack under the *ratio* of warding off the attacker. If the only means are lethal means, so be it, but this does not entail that the victim necessarily desires the death of his assailant.

Returning to our first monologue, while the victim shoots at the head while he is shooting his attacker, it does not mean that he is intending to kill, because in this first scenario, the victim did not intend to shoot his assailant in the head at all. He simply wants to shoot because he knows that shooting the assailant will ward off the attack. Therefore, I propose that the exterior act should not be described as "shooting a bullet into the head of one's assailant," but simply "shooting a bullet at one's assailant." The matter of the exterior act is the unjust assailant who receives the innocent victim's shooting of the bullet as the term. "With respect to due matter and circumstances," this would be a good act because an unjust attacker is apt matter to receive a bullet that has been shot to stop the attack. "In respect of the order to the end," this too would be a good act because it is a shooting of the assailant to defend one's life. This specifies the shooting as an act of self-defense.

In the second scenario, while the victim shoots at the head intentionally, he does so without deliberately willing the assailant's death. Rather he shoots at the head because it is the only way that he sees himself stopping the assailant. Therefore, I propose that the exterior act should not be described as "shooting a bullet into the head of one's assailant," but "shooting a bullet into the head of one's assailant when this is the only available means to stop his attack." This description, in my view, better respects the perspective of this terrified acting person. The matter of the exterior act is the head of the unjust assailant that receives the innocent victim's shooting of the bullet as the term. "With respect to due matter and circumstances," this would be a good act because the head of an unjust attacker is apt matter to receive a bullet when this is the only means to stopping

the assailant's attack. It is in accord with right reason. "In respect of the order to the end," this too would be a good act. Once again, it is an act of self-defense. [123]

Finally, I should point out that in my view, self-defense cases are particularly difficult to specify because of their highly emotional and charged nature, which is why I do not think that they should be used to make or break a Thomistic theory of action. As we will discuss in more detail in the next chapter, the passions can move the intellect and the will in ways that are inimical to right reason.

But what about Long's concern that this analysis opens up moral theology to an intentionalism that permits the agent to propose subjective re-descriptions that justify condom use (to prevent the spread of HIV/AIDS) or the murder of a royal heir (to prevent dynastic civil war)? His fears are not warranted. In both these cases, according to the reading of St. Thomas proposed here, the exterior acts are specified as "depositing one's semen into a condom", and "choking a child". Both of these acts are repugnant to right reason since a condom is not apt to be the matter for the depositing of semen, and a child is not apt matter for choking. As such these acts are defective "with respect to due matter and circumstances." They lack the perfection of goodness proper to a good act, regardless of the further end to which they are ordered. As such they are intrinsically evil.

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[123] Like the St. Thomas, who thought that public authorities like a soldier or a public executioner could kill either with or without malice, which would change the specification of their acts, I think that an innocent victim could also choose to shoot his assailant either with or without the intent to kill. As I have argued elsewhere, I do not think that this is completely subjective, i.e., hidden from third party examination. Rather, I propose that this intention would become evident in the narrative intelligibility or unintelligibility of the innocent victim's description of his actions. For more discussion, see my "On Reshaping Skulls and Unintelligible Intentions," *Nova et Vetera* 2 (2004): 81-100.

In summary, I propose that a Thomistic theory of action that acknowledges the three sources of goodness for the moral object, i.e., the end, the exterior act in itself, and the exterior act in relation to the end, *and* the hylomorphic relationship between the object of the exterior act and the object of the interior act that constitutes the moral object in its fullness, can account for the commonsense intuitions of everyday moral agents. Professor Long affirms the latter, but like Fr. Rhonheimer, he rejects the former. One needs both for a faithful reconstruction of St. Thomas's theory of action.

The Moral Specification of a Placentectomy to Resolve a Crisis Pregnancy

Returning now to the controversial Phoenix abortion case. In her analysis, Lysaught begins with a summary of the crisis pregnancy case that occasioned the controversial placentectomy at St. Joseph's Hospital in Phoenix. In brief, an 11-week pregnant woman with a history of moderate but well-controlled pulmonary hypertension developed a "severe, life-threatening pulmonary hypertension" with a risk of mortality "near 100 percent."[124] Two additional pathologies emerged, the pathology of right side heart failure and cardiogenic shock. Together, these conditions threatened the life of both the mother and her fetal child. In response to this crisis pregnancy, the women's physicians performed an ethics committee-approved "dilation and curettage to detach the placenta"[125], which was the immediate cause of the life-threatening pathological conditions described above.

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[124] Lysaught, "Moral Analysis," p. 538.

[125] Ibid., p. 546. As any obstetrician will tell you, however, a dilation and curettage procedure on an 11-week pregnant woman whose fetal child is only 1.5 inches long cannot physically disrupt the placenta without simultaneously disrupting the small body

Moving to her moral analysis proper, Lysaught explicitly relies on the arguments of Fr. Martin Rhonheimer and of Germain Grisez to justify the placentectomy performed in Phoenix. Though they are not identical, these theories are similar in that both specify a moral act with reference to the end alone.[126] Lysaught captures the central claim of both these accounts as follows: "A proper description of the moral object, then, certainly includes the 'exterior act — since it is a necessary part of the moral action as a whole — but it derives its properly moral content first and foremost from the proximate end deliberately chosen by the will."[127] Not surprisingly, therefore, she argues that a placentectomy to resolve a crisis pregnancy should be specified not as a direct killing of the child at the moral level but as the "saving the life of the mother."[128] Lysaught concludes:

> Following the opinions of [Rhonheimer and Grisez], I would argue that the intervention that occurred at St. Joseph's Hospital on Nov. 5, 2009, cannot properly be described as an "abortion," in terms of its moral object. At most, the effect on the child can only be categorized as "indirect," which is morally permitted by the Catholic tradition. Most important, the

of the fetal child. Thus, it is erroneous for Lysaught and for the Hospital to argue that this medical intervention targeted the placenta alone without simultaneously targeting the fetal child. Nonetheless, I will ignore this very significant error and will conclude this chapter by considering her moral analysis on her own terms.

[126] For two recent papers that defend Germain Grisez's account of moral specification, as it has been appropriated by those philosophers who argue for the New Natural Law Theory, see the following: Christopher Tollefsen, "Is a purely first person account of human action defensible?" *Ethical Theory and Moral Practice* 9 (2006): 441-460; and Christopher Tollefsen, "Response to Robert Koons and Matthew O'Brien's 'Objects of Intention: A Hylomorphic Critique of the New Natural Law Theory'," *American Catholic Philosophical Quarterly* 87 (2013): 751-778.

[127] Lysaught, "Moral Analysis," p. 542.

[128] Ibid., p. 546.

death of the child was not willed, either by the mother or the medical staff;

the child was a deeply wanted child. Effecting the death of the child would

not achieve any medical or ancillary end. Therefore the death of the child

was not the means to any end in this case…The moral object of the

intervention was to save the life of the mother. The death of the fetus was,

at maximum, nondirect and praeter intentionem. [129]

It should be clear that Lysaught's moral analysis is not a novel account. Rather, in her

view, it is a specific application of Rhonheimer's (and Grisez's) theory of moral

specification to a particular medical intervention undertaken to resolve a crisis

pregnancy.[130]

In response, I will not rehash my objections to Rhonheimer's account discussed

above. They apply to Lysaught's analysis as well. Instead, I will focus on applying the

theory described in this chapter to the medical intervention of a placentectomy to resolve

a crisis pregnancy. Is it a virtuous act?

As I have already discussed several times above, the first step in this process

involves specifying the exterior act that is chosen. Based on the medical narrative, this is

properly described as "disrupting the placenta of a fetal child with a D&C," where the

matter of act is the fetal child's placenta. When she entered the operating room, this is

what the obstetrician willed to do as a means to the end of resolving the pathologies of the

critically ill pregnant woman. Note that Lysaught chose to disregard the critical specifying

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[129] Ibid., p. 548.

[130] I note that Fr. Rhonheimer has specifically repudiated Lysaught's recounting of his action theory. See his essay, "Vital Conflicts, Direct Killing, and Justice," pp. 534-535. [Footnote 26]

condition that the placenta, in the most part, belongs to the fetal child as an organ that provides him with essential gases and nutrients from his mother. As I have explained in greater detail elsewhere, the placenta is a predominantly fetal organ constituted primarily by cells of fetal origin.[131] As we will see shortly, this is a specifying condition for the matter of the exterior act because "belonging to the fetal child" will necessarily influence our moral evaluation of the act in the same way that "belonging to a church" is also a specifying condition for a the cup that we call a chalice.

Next, the second step involves evaluating the goodness of this act. In itself, disrupting the placenta of a fetal child is repugnant to right reason because the placenta of a fetal child – a vital organ for the child *in utero* – is not apt matter to receive an act of physical disruption. It would constitute an attack on the child in the same way that disrupting the heart of a teenager – a vital organ for the young man – would constitute an attack on him. "With respect to due matter and circumstances," disrupting the placenta of the fetal child would be intrinsically evil regardless of its further ordering to the end of saving the life of the pregnant woman.

In sum, a placentectomy undertaken to resolve a crisis pregnancy lacks the fullness of being and thus of goodness that it should have. It is the killing of an innocent fetal child and as such is a direct abortion. Contrary to Lysaught's conclusions, it can never be justified. It can never be a virtuous act.

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[131] Austriaco, "Abortion in a Case of Pulmonary Arterial Hypertension," p. 517.

Finally, as a post-script, I would like to propose that a virtuous alternative to the placentectomy is the pre-viable induction of labor to resolve a crisis pregnancy.[132] Here, the physicians induce labor by giving the pregnant woman a drug that acts on the uterus to trigger contractions. The exterior act would involve the chemical alteration of the gravid uterus so that it will contract. Note that a gravid uterus is apt matter for the chemical alteration that triggers labor. This is done routinely in labor and delivery rooms around the planet. In the context of a crisis pregnancy, it is ordered by the physician to the end of expulsion of a placenta that is the immediate cause of a life-threatening pathological condition. As such, in my view, this human act is in accord with right reason. It would be good.

Conclusion

In this chapter, I have described a theory of action that I believe is faithful to the thought of St. Thomas Aquinas. It is a reading that acknowledges that human acts are willed causal events with a hylomorphic structure composed of both material and formal principles. It is a reading that illustrates well how an understanding of hylomorphic theory and its analogous use in St. Thomas's moral theology can allow us to clarify and to resolve contemporary ethical disputes among theologians working within the Thomistic tradition today. In the next chapter, we will extend this analysis to St. Thomas's theory of human emotion and to its application to conceptual problems in contemporary

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[132] Meredith White and Nicanor Austriaco, O.P., "The Use of Pre-term Induction in Crisis Pregnancies: The Drowning Lifeguard-Drowning Swimmer Case," *Angelicum*, in press. Also see my, "Resolving Crisis Pregnancies: Acting on the Mother versus Acting on the Fetal Child," *National Catholic Bioethics Quarterly* 15 (2015): 207-208.

neuroscience that impact moral theology because of the influence of the passions on the intellect and the will.

CHAPTER THREE

Is There a Non-Dualist Definition for Pavlovian "Learned" Fear?
A Hylomorphic Investigation of the Passions

<u>Introduction</u>

In a recent and comprehensive scientific review summarizing the state-of-the-science of the biology of fear, published in the *Proceedings of the National Academy of Sciences (USA)*, world-renowned neuroscientist and expert on the biology of fear, Joseph LeDoux acknowledges that he and his colleagues are struggling to define fear.[1] For some neuroscientists, fear has been associated with the unconscious responses elicited by threats to an organism's well being, while for others working in the same field, fear necessarily includes the conscious felt experience that we associate with what we call the "feeling" of fear. The former definition of fear locates fear in the species-typical, presumably innate, behavioral, and physiological responses in response to a threat, while the latter definition attributes subjective states to organisms in the "state of fear," which are said to cause fearful behavior.

LeDoux notes that neuroscientists today are prone to blend these two perspectives of fear leading them to assume that "some emotional feelings are innately wired in brain circuits and others are psychologically or socially determined."[2] However, LeDoux personally rejects this "dualistic" account "where fear is a bottom-up state that is unleashed in a prepackaged pure form of experience stored in a hardwired circuit, and

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[1] Joseph E. LeDoux, "Coming to terms with fear," *Proc. Natl Acad. Sci USA* 111 (2014): 2871-2878. The two paragraphs that follow is much indebted to this systematic review.
[2] Ibid., p. 2876.

other feelings are cognitively constructed."[3] Instead, LeDoux seeks to restrict the term fear to the conscious experience that occurs when an organism is threatened. He proposes the following definition: "Fear is what happens when the sentient brain is aware that its personal well-being (physical, mental, social, cultural, existential) is challenged or may be at some point. What ties together all instances of fear is an awareness, based on the raw materials available, that danger is near or possible."[4] Strikingly, however, this definition leads LeDoux to reject the commonly held view that human infants and animals feel fear.

In this chapter, I investigate the hylomorphic framework used by St. Thomas to understand the passions and their relationship to the intellect and to the will in order to bring his account into conversation with our present-day biological understanding of the emotions.[5] I begin with his description of a human passion as a hylomorphic reality of an appetitive movement as form, and of a bodily reaction as matter, situating it within his anthropological understanding of the human person as a hylomorphic whole. To better illustrate St. Thomas's hylomorphic understanding of the passions, we then turn to his account of a specific passion, the passion of fear (*timor*). I conclude my investigation of St. Thomas's treatise on the passions with his treatment of the relationship between acts

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[3] Ibid.

[4] Ibid.

[5] There is been much recent debate over the similarities and differences between the passions and the emotions. As I will propose in this chapter, I think that St. Thomas's definition of a passion can be used to describe the emotions investigated by Joseph LeDoux and other neuroscientists. For a sense of this debate comparing passions and emotions, compare the following texts: Robert C. Solomon, *The Passions: Emotions and the Meaning of Life,* 2nd ed. (Indianapolis: Hackett Publishing Company, 1993); and Thomas Dixon, *From Passions to Emotions: The Creation of a Secular Psychological Category* (Cambridge: Cambridge University Press, 2003).

of the higher powers, our acts of knowing and of willing, and acts of the lower powers, our acts of feeling. They relate to each other too as form relates to matter.

I then propose that this hylomorphic understanding of the passions is an solution to the current problem faced by neuroscientists, accurately described by LeDoux, of defining fear without falling victim to a dualistic understanding of the emotions. To demonstrate its explanatory power, I illustrate how this hylomorphic theory of the passions can explain the phenomenology of fear in a manner that is compatible with the best data of contemporary neuroscience. This chapter will illustrate how an understanding of hylomorphic theory and its analogous use in St. Thomas's moral theology can clarify contemporary questions extending beyond theology, in this case in the neuroscience of emotions, which have a direct impact on moral theology because of the impact that passions have on our intellect and on our will.

The Hylomorphic Structure of Thomistic Passion

Everyone feels. Everyone experiences what St. Thomas and his contemporaries called, the passions of the soul (*passiones animae*).[6] To explain this very human activity, the Angelic Doctor wrote three extended treatments of the passions during his career: *In*

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[6] For recent discussions on the passions/emotions in St. Thomas Aquinas, see Robert Miner, *Thomas Aquinas on the Passions* (Cambridge: Cambridge University Press, 2009); Diana Fritz Cates, *Aquinas on the Emotions: A Religious-Ethical Inquiry* (Washington, D.C.: Georgetown University Press, 2009); and Nicholas E. Lombardo, O.P., *The Logic of Desire: Aquinas on the Passions* (Washington, D.C.: The Catholic University of America Press, 2011). I am also indebted to the discussion found in the following chapters: Kevin White, "The Passions of the Soul (Ia IIae, qq. 22-48)" in *The Ethics of Aquinas,* ed. Stephen J. Pope (Washington, D.C.: Georgetown University Press, 2002), pp. 103-115; and Peter King, "Aquinas on the Emotions," in *The Oxford Handbook of Aquinas*, ed. Brian Davies and Eleonore Stump (Oxford: Oxford University Press, 2012), pp. 209-226.

Sent. III.15.2.26.1 and III.15.2.27.1, written between 1252-1256[7]; *De veritate* q.25-26, written between 1256-1259; and *STh* I-II.22-48, written around 1271, the last of which is universally acknowledged as one of the most sustained and sophisticated investigations of the emotions ever written.[8] Notably, the Angelic Doctor situated his treatment of the passions within the *Secunda pars* of the *Summa*, which today would be considered the part of the text dealing with his moral theology. This follows from St. Thomas's observation and from our everyday experience that the passions can anticipate to or proceed from acts of the intellect and the will as the human agent acts to attain a real or an apparent good.

Recall from Chapter One that the human agent is best described, according to St. Thomas, as a hylomorphic substance of prime matter and of substantial form, a body-soul composite. The human rational soul has five basic powers, where each power is a potency in the soul to some perfection of the form.

First, it has vegetative powers ordered towards its secondary matter, which is the human body itself. These are the powers responsible for the organism's biological capacities to nourish itself, to grow, and to reproduce.[9] Next, the rational soul has sense powers ordered toward the proper and common sensibles, five exterior senses actualized by those qualities like color, sound, odor, flavor, and tangibility that allow the human

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[7] Dates are taken from Jean-Pierre Torrell, O.P. *Saint Thomas Aquinas, Volume 1: The Person and His Work,* Trans. Robert Royal (Washington, D.C.: The Catholic University of America Press, 2005).

[8] For representative scholars who profess this view of the treatise of the passions in the *Summa*, see the following texts: Servais Pinckaers, O.P., "Les passions et la morale," *Revue des sciences philosophiques and theologiques* 74 (1990): 379-391, p. 379; Peter King, "Aquinas on the Emotions," p. 209; and Brian Davies, O.P., *Thomas Aquinas's* Summa Theologiae: *A Guide and Commentary* (Oxford: Oxford University Press, 2014), p. 170.

[9] *STh* I.78.2.

organism to perceive his surroundings[10], and five interior senses actualized by integrated sense data, by particular forms, by phantasms, by memories, and by non-sensible intentions (*intentiones*) that indicate if the sensible object is good or evil for the person. Third, the rational soul has a locomotive power ordered to the term of the body's operation and movement. This is the power that allows a man to move his body not only in place but also from one place to another. These sense and locomotive powers are shared with the souls of the other animals.

Fourth, the rational soul has appetitive powers that move the organism towards realities that it apprehends as desirable.[11] The human agent has three of these appetitive inclinations. First, there is the intellective appetite or the will, considered in detail in the previous chapter, which moves the human organism towards intelligible goods and away from intelligible evils.[12] Next, there are the two sensitive appetitive inclinations, first, the concupiscible appetite that moves the agent towards the beneficial and away from the harmful, simply and particularly considered, and second, the irascible appetite that moves him towards the beneficial that is hard to attain and away from the harmful that is hard to avoid, again, simply and particularly considered.[13] Lastly, the rational soul has powers of intellective cognition, composed of the active and the passive intellects, that are ordered towards those universal concepts that are knowable.[14]

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[10] *STh* I.78.3.
[11] *STh* I.80.1.
[12] *STh* I.82.1-2.
[13] *STh* I.81.2.
[14] *STh* I.79.1.

Within this anthropological context, St. Thomas defines a passion as a hylomorphic reality involving a movement of the sensitive appetite as formal, and a proportionate physiological change in the body, as material:

> In the passions of the soul, the formal aspect is the movement of the appetitive power, while the material aspect is the bodily change, both of which are proportionate to each other.[15]

Or again:

> As applied to love, with respect to its formal aspect, it is on the part of the appetite. But with respect to the material aspect of the passion of love, which is a bodily change, it happens that love is hurtful if this change is excessive.[16]

Despite its hylomorphic constitution, however, a passion remains an integral reality. When we fall in love, we experience the attraction to the beloved – the formal aspect of the passion – the pulse-racing, the knees-going-weak, and the butterflies-in-the-stomach sensation – the material aspect of the passion – as multi-faceted dimensions of the single passion we associate with love, in this case, romantic love.

For St. Thomas, the passions are in the appetitive rather than in the apprehensive powers because they incline the human agent towards realities in the world, a outward motion associated more with the appetitive rather than with the apprehensive powers.

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[15] *STh* I-II.44.1: "In passionibus animae est sicut formale ipse motus appetitivae potentiae, sicut autem materiale transmutatio corporalis, quorum unum alteri proportionatur."

[16] *STh* I-II.28.5: "Dictum sit de amore, quantum ad id quod est formale in ipso, quod est scilicet ex parte appetitus. Quantum vero ad id quod est materiale in passione amoris, quod est immutatio aliqua corporalis, accidit quod amor sit laesivus propter excessum immutationis."

Love, for instance, moves the human agent toward his beloved. Passions, for St. Thomas,

must then be in the soul's powers that move the agent towards realities in the world.

These are the appetitive powers. As St. Thomas explains:

> The name "passion" implies that the patient is drawn to that which is the
>
> agent's. Now the soul is drawn to a thing through the appetitive power
>
> rather than by the apprehensive power because the soul has, through its
>
> appetitive power, an order to things as they are in themselves…On the
>
> other hand the apprehensive power is not drawn to a thing, as it is in itself;
>
> but knows it by reason of a non-sensible intentions (*intentiones*) of the
>
> thing, which it has in itself, or receives in its own way.[17]

Next, the passions are in the sensitive appetites rather than in the intellective appetite, i.e.,

the will, because they involve physiological changes. Fear, for instance, is accompanied by

rapid heart rate, increased blood pressure, tightening of the muscles, dilation of the pupils

and increased sweating. Passions, for St. Thomas, must then be in the soul's powers that

are intimately associated to the body. These are the sensitive appetites. As St. Thomas

explains:

> A passion is properly to found where there is bodily change, which is
>
> found in the act of the sensitive appetite…Now there is no need for bodily
>
> change in the act of the intellectual appetite because this appetite does not

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[17] *STh* I-II.22.2: "In nomine passionis importatur quod patiens trahatur ad id quod est agentis. Magis autem trahitur anima ad rem per vim appetitivam quam per vim apprehensivam. Nam per vim appetitivam anima habet ordinem ad ipsas res, prout in seipsis sunt…Vis autem apprehensiva non trahitur ad rem, secundum quod in seipsa est sed cognoscit eam secundum intentionem rei, quam in se habet vel recipit secundum proprium modum."

involve a power of any bodily organ. It is therefore evident that a passion is more properly found in the act of the sensitive rather than of the intellective appetite.[18]

Lastly, it is important to acknowledge that because of their hylomorphic structure, for St. Thomas, a passion is experienced neither by the soul nor by the body but by the soul-body composite: "And passion is not found in the soul except accidently but in the composite essentially."[19] Or again: "If passion is strictly taken it is impossible for anything incorporeal to suffer. Therefore, in a passion properly so called, it is the body that suffers essentially. If we say that a passion properly pertains to the soul, this is only as it is united to the body, and as such it [only pertains to the soul] indirectly."[20] It is the human agent who loves. It is the human agent who fears. It is the human agent who feels.

The Hylomorphic Structure of Fear According to St. Thomas Aquinas

To illustrate St. Thomas's hylomorphic understanding of the passions in more detail, we now turn to his account of a specific passion, the passion of fear (*timor*). The Angelic Doctor devotes four *quaestiones* in the *Summa theologiae* to this passion.

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[18] *STh* I-II.22.3: "Passio proprie invenitur ubi est transmutatio corporalis. Quae quidem invenitur in actibus appetitus sensitive…In actu autem appetitus intellectivi non requiritur aliqua transmutatio corporalis, quia huiusmodi appetitus non est virtus alicuius organi. Unde patet quod ratio passionis magis proprie invenitur in actu appetitus sensitivi quam intellectivi."

[19] *STh* I-II.22.1 ad 3: "Et huiusmodi passio animae convenire non potest nisi per accidens, per se autem convenit composito."

[20] *De veritate* 26.2: "Quod proprie accipiendo passionem, impossibile est aliquod incorporeum pati, ut supra, art. praec., dictum est. Illud ergo quod per se patitur passione propria, corpus est. Si ergo passio proprie dicta aliquo modo ad animam pertineat, hoc non est nisi secundum quod unitur corpori, et ita per accidens."

In the first question that deals with fear in itself, he begins by explaining why fear is properly a passion: It is a movement in the appetitive power that is accompanied by bodily responses, which the human agent experiences as a reality that acts upon him as a passive subject.[21] As such, for St. Thomas, fear chiefly has the character of a passion after sorrow.[22] He then defines fear as that special passion with a future evil, difficult and irresistible (*malum futurum difficile cui resisti non potest*), as its object.[23] A passion is distinguished from all the other passions by its object, in the same way that a virtue is distinguished from all the other virtues by its object. St. Thomas explains that living organisms that shrink from corruptive evils that they apprehend can be said to experience fear on account of their natural desire to exist.[24] The *quaestio* ends with a taxonomy of fear, distinguished by proper divisions of the object of fear itself.[25] St. Thomas affirms six species of fear, namely laziness (*segnities*), bashfulness (*erubescentia*), shame (*verecundia*), amazement (*admiratio*), stupor (*stupor*), and anxiety (*agonia*).

Turning to the next question in the quartet of *quaestiones* on fear, St. Thomas investigates the object of the passion. First, according to the Angelic Doctor, an object of fear must be perceived by the agent as something evil in itself, namely as something that deprives the agent of the good that he loves.[26] As such, properly speaking, fear is the passion that the agent experiences when he recoils from the possibility that he will lose a good that he loves. St. Thomas then explains that the proper object of fear is not just an

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[21] *STh* I-II.41.1.
[22] Ibid.
[23] *STh* I-II.41.2.
[24] *STh* I-II.41.3.
[25] *STh* I-II.41.4.
[26] *STh* I-II.42.1.

evil, but is more specifically, a *future* evil that is threatening to the agent. As he observes, citing Aristotle, fear is diminished when the future evil is perceived as present: "Hence the Philosopher says…that those who are about to be decapitated are not afraid, seeing that their death is imminent, but for someone to be afraid, there must be some hope of salvation for him."[27] In the remaining articles of this question, St. Thomas makes several distinctions regarding the object of fear, which are not relevant for the arguments I make in this thesis.

In his third, rather brief *quaestio* on fear, with only two articles, St. Thomas explores the cause of fear. Here, he investigates those things that predispose the human agent to perceive a particular reality as a threatening evil that evokes fear. He begins by noting that objects relate to passions in the same way that forms relate to natural or artificial things: Objects and forms specify passions and substances respectively.[28] St. Thomas then explains that just as whatever causes a form is a cause of the substance, whatever causes the object of a passion is also a cause for the passion itself. Two species of causes fall under this description, namely efficient causes that cause the object (*per modum causae efficientis*) and dispositive causes that dispose the subject to the object (*per modum dispositionis materialis*). As such, in St. Thomas's view, with regards to fear, that which can inflict a future evil and that which disposes the human agent to perceive the evil precisely as an evil are both causes for fear. One of these dispositive causes, if not the most important dispositive cause, is love: "In this way love is a cause of fear, for it is from

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[27] *STh* I-II.42.2: "Unde philosophus dicit…quod illi qui iam decapitantur non timent, videntes sibi necessitatem mortis imminere; sed ad hoc quod aliquis timeat, oportet adesse aliquam spem salutis."
[28] *STh* I-II.43.1.

loving a certain good that whatever deprives that good from someone is an evil for him. Consequently, he fears it as an evil."[29] In the second article, St. Thomas proposes that deficiency (*defectus*) is a cause for fear.[30] With respect to the mode of dispositive cause, deficiency causes fear when some deficiency in the agent prevents him from properly repelling a threatening future evil. With respect to the mode of efficient causality, however, deficiency can cause fear only accidentally, as when some defect, say some moral defect in another, makes someone fear him.

Finally, in the fourth *quaestio*, St. Thomas lists the effects of fear. The hylomorphic structure of the passion is most evident here. The formal element of the passion of fear is the movement of the sensitive appetite – called a "contraction" by the Angelic Doctor – when it is presented with a future evil that is difficult and irresistible.[31] This is the recoiling that the fearful agent experiences when he realizes that he is being confronted with an evil that he could still possibly repel. The material element involves the bodily changes that accompany this movement of the sensitive appetite, catalogued by the Angelic Doctor to include, for fear, among other things, trembling and paralysis.[32] It is striking that St. Thomas grounds his analysis of the passions on his (now, antiquated!)

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[29] *STh* I-II.43.1: "Et hoc modo amor est causa timoris, ex hoc enim quod aliquis amat aliquod bonum, sequitur quod privativum talis boni sit ei malum, et per consequens quod timeat ipsum tanquam malum."
[30] *STh* I-II.43.2.
[31] *STh* I-II.44.1.
[32] *STh* I-II.44.3-4.

biology that he inherited from Galen: He attributes these corporeal changes to movements of innate heat within the body, especially around the human heart.[33]

<u>The Hylomorphic Relationship Between Human Knowing and Human Feeling</u>

In addition to conceptualizing the essential constitution of the passions using matter-form language, St. Thomas also construed the relationship between our acts of feeling these passions and our acts of knowing and of willing as hylomorphic in nature. He explains:

> In the genus of natural things, a whole is composed of matter and of form,
> as the human being who is soul and body is one natural thing though he
> has many parts. In the same way, in human acts, the act of the lower power
> is matter with regard to the act of the higher power in so far as the lower
> power acts in virtue of the higher power.[34]

For St. Thomas, the superior acts of knowing and of desiring are to the inferior act of feeling as form is to matter and soul is to body.

In this section of the chapter, we will investigate the hylomorphic relationship between acts of the sensitive appetite, i.e., the passions, and acts of cognition, to answer two questions. First, what is the role of cognition, if any, in the arousal of a particular

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[33] For discussion of the physiology that St. Thomas takes as a given in his theological synthesis, see Armelle Debru, "Physiology," in *The Cambridge Companion to Galen,* ed. R.J. Hankinson (Cambridge: Cambridge University Press, 2008), pp. 263-282.

[34] *STh* I-II.17.4: "In genere rerum naturalium, aliquod totum componitur ex materia et forma, ut homo ex anima et corpore, qui est unum ens naturale, licet habeat multitudinem partium; ita etiam in actibus humanis, actus inferioris potentiae materialiter se habet ad actum superioris, inquantum inferior potentia agit in virtute superioris moventis ipsam."

passion, and second, to what extent can cognition regulate and alter a passion. In the following section of this chapter, we will move to a parallel analysis to explore the hylomorphic relationship between acts of sensitive appetite, i.e., the passions, and acts of the will. Recall from the previous chapter that the intellect and the will necessarily cooperate with each other in every human act. As such, properly speaking, the human agent acts on his passions, as he does in every human act, with both his intellect and his will engaged and working together.

To begin with our first question, to identify the role of cognition in the arousal of a passion, we need to grasp the link between apprehension and passion. Though the sensitive appetites are properly the subjects of passion, for St. Thomas, the human agent cannot experience a passion unless he is able to apprehend the object of that passion: "The lower appetite does not naturally tend to anything until a thing is proposed to it under the aspect of its proper object."[35] This is confirmed by our ordinary everyday experience: One can only fear a snake if one perceives a snake in some way.

But how does the human agent perceive an object of a passion, say a rattler on the hiking path? Recall that the human agent, according to St. Thomas, has both sensitive and intellective cogitative powers. Sensitive cognition has for its object an individual form as it exists in corporeal matter.[36] In human beings, it involves our exterior and our interior senses. When the human agent is confronted with an object of fear in the here and the now, the exterior senses are actualized by the proper and common sensibles of the object, the common sense compares and combines these qualities to generate a phantasm of the

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[35] *De veritate* 25.4 ad 4: "Appetitiva inferior non naturaliter tendit in rem aliam, nisi postquam proponitur sibi sub ratione proprii obiecti."
[36] *STh* I.85.1.

object as a singular individual, and the cogitative sense intuits non-sensible intentions (*intentiones*) that indicate if the object is a particular good or a particular evil.[37] When the human agent imagines or remembers the object, then the memorative and the imaginative powers are actualized as well. In contrast, intellective cognition, as its name suggests, involves the intellect, which is able to abstract the intelligible species from the phantasms. It is through the intellect that we are able to grasp the essential natures of things, so as to transcend the particular and attain the universal. It is through his intellect that the hiker is able to understand that he has come across not just a snake, but a snake of a particular kind, in this case, the rattler kind.

Given that we have two different modes of knowing, it should not be surprising that we can apprehend an object of a passion with either one or with both modes of cognition together. Apprehension of the object can occur at the level of sensitive cognition, specifically at the level of the cogitative "instinctual" sense, also called the particular reason, where the agent perceives a threat that he cannot really explain using conceptual terms. Think of a lone pedestrian who experiences an inarticulate fear as she walks down a darkened alleyway without being able to explain why she is afraid. Apprehension of the object can also occur at the level of intellectual cognition, also called

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[37] As I will discuss in greater detail at the close of this chapter, though human sense cognition resembles animal sense cognition, it should not be surprising that for St. Thomas, sensitive cognition in human beings is "intellectualized" in that it is permeated through and influenced by the power of the intellect. This obtains because the human agent is a hylomorphic substance where spirit and body come together as an integral whole. For a discussion of St. Thomas's account of the internal senses within its medieval context, see Deborah L. Black, "Imagination, Particular Reason, and Memory: The Role of the Internal Senses in Human Cognition," Presented at the Katholieke Universiteit Leuven, February 19, 2010. Available at http://individual.utoronto.ca/dlblack/articles/ImagPartRweb.pdf. Last accessed on August 23, 2015.

the universal reason, probably in partnership with the particular reason, where the agent can somewhat comprehend and explain the threat that he perceives. Think here of the infantryman wading ashore on Omaha Beach on the morning of June 6, 1944, who can point to the German artillery on the hillside to explain his terror. Clearly, apprehending a threat, either intuitively and/or intellectually, can arouse fear. The importance of this point will become clearer below when I bring St. Thomas's account of fear into conversation with Joseph LeDoux's understanding of the same passion.

Moving to our next question, to what extent can cognition regulate and influence the passions, we should first acknowledge what St. Thomas observes and what our everyday experience confirms: Our passions precede the judgment of reason and as such are not completely under in our control.[38] Often despite our best efforts, passions are unruly and resist all attempts to control them:

> It happens sometimes that the movement of the sensitive appetite is aroused unexpectedly because of the apprehension of the imagination or of the sense. Such a movement is outside the command of reason although reason could have prevented it if it had foreseen it. Hence the Philosopher says…that reason governs the irascible and the concupiscible appetites not by tyrannical rule, which is that of a master and a slave, but by political and royal rule, which is how the free who are not completely subjugated to command, are governed.[39]

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[38] *STh* I-II.74.3-4. Cf. *De veritate* 25.5.
[39] *STh* I-II.17.7: "Contingit etiam quandoque quod motus appetitus sensitivi subito concitatur ad apprehensionem imaginationis vel sensus. Et tunc ille motus est praeter imperium rationis, quamvis potuisset impediri a ratione, si praevidisset. Unde

The recalcitrant and disorderly character of the passions arises from their subject. Since the sensitive appetite is a power of the soul that necessarily uses the body as an instrument, it is influenced not only by the intellect but also by the dispositions of the body, which are beyond the control of reason.[40] Hence the need for actual graces that help the human agent to order the movements of his sensitive appetites.

However, for St. Thomas, our intellects can and still do influence the passions in two ways. First, the intellect can present the object of a passion to the human agent under different formalities influencing the particular passion that is aroused:

> The lower appetite does not naturally tend to anything until a thing is proposed to it under the aspect of its proper object…Since it is in the power of reason to propose one and the same things under different aspects, as some food is either delicious or deadly, reason is able to move sensuality under different formalities.[41]

Thus, the wife who is confronted by her adulterous husband, to alleviate her anger, can choose to see a betrayer who needs to be divorced or a sinner who needs to be forgiven.

Second, the intellect can present the human agent with general considerations that alter the way he understands a particular situation. This can alter the passion that has been aroused. St. Thomas explains: "For anyone can experience for himself that by the

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philosophus dicit…quod ratio praeest irascibili et concupiscibili non principatu despotico, qui est domini ad servum; sed principatu politico aut regali, qui est ad liberos, qui non totaliter subduntur imperio." Cf. *STh* I.81.3 ad 2.

[40] *De veritate* 25.4. ad 5.

[41] *De veritate* 25.4: "Appetitiva inferior non naturaliter tendit in rem aliam, nisi postquam proponitur sibi sub ratione proprii obiecti…Unde, cum in potestate rationis sit sub diversis rationibus unam et eamdem rem proponere, utpote cibum aliquem ut delectabilem et ut mortiferum, potest in diversa ratio sensualitatem movere."

application of some universal considerations, anger or fear or the like, may be mitigated or instigated."[42] Thus, a passenger who is afraid of flying, to alleviate her fear, can remind herself that flying in a plane is safer than riding in a car. Hopefully, this universal consideration alters her perception of the dangers of flying.

As our everyday experience confirms, however, these intellectual strategies are not always successful. Therefore, we must now consider the role of the intellective appetite, namely, the will, in the control of the passions, remembering that properly speaking, the human agent acts on his passions, as he does in every human act, with both his intellect and his will working together.

The Hylomorphic Relationship Between Human Willing and Human Feeling

In this section of the chapter, we will explore the hylomorphic relationship between acts of sensitive appetite, i.e., the passions, and acts of the will. To what extent can the will influence a passion? St. Thomas describes three ways this could happen, again, because of the superiority of the will to the sensitive appetite. Recall that the superior act of willing is to the inferior act of feeling as form is to matter and soul is to body.

First, the will can direct, though it cannot dictate, the sensitive appetite leading the arousal of certain passions consequent to the will's choice:

On the part of the will: In the case of powers that are ordered to one another and as such are connected, it happens that an intense movement

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[42] *STh* I.81.3: "Hoc etiam quilibet experiri potest in seipso, applicando enim aliquas universales considerationes, mitigatur ira aut timor aut aliquid huiusmodi, vel etiam instigator."

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in one, and especially in the higher one, overflows to the other. Thus,

when the movement of the will is directed to something through choice,

the irascible and concupiscible appetites follow this movement of the

will.[43]

Thus, when a young man finally makes a commitment to pursue a vocation to the holy

priesthood, it is not surprising that his decision can be immediately followed by delight

and hope.

Next, the will governs the human agent's consent for or against the movements of

the sensitive appetite, i.e., his passions:

The sensitive appetite is also subject to the will with regards to execution,

which is accomplished through the motive force…The human being is not

moved immediately according to the irascible and the concupiscible

appetites but awaits the command of the will, which is a superior appetite.

For wherever there is order among all the motive powers, the moved is not

moved except through the power of the mover: The lower appetite is not

sufficient for movement unless the higher appetite consents.[44]

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[43] *De veritate* 25.4: "Secundo ex parte voluntatis. In viribus enim ordinatis ad invicem et connexis ita se habet, quod motus intensus in una earum, et praecipue in superiori, redundat in aliam. Unde, cum motus voluntatis per electionem intenditur circa aliquid, irascibilis et concupiscibilis sequitur motum voluntatis."

[44] *STh* I.81.3: "Voluntati etiam subiacet appetitus sensitivus, quantum ad executionem, quae fit per vim motivam…Sed homo non statim movetur secundum appetitum irascibilis et concupiscibilis; sed expectatur imperium voluntatis, quod est appetitus superior. In omnibus enim potentiis motivis ordinatis, secundum movens non movet nisi virtute primi moventis, unde appetitus inferior non sufficit movere, nisi appetitus superior consentiat."

Thus, the married man who experiences an attraction to his gorgeous secretary can endorse or reject his feelings towards her.

Finally, the will can directly affect the motive power that executes motion so that the members of the body may obey an appetite.[45] As St. Thomas explains:

> [The lower appetites are subject to the higher powers] on the part of the motive power that executes. For just as in an army, progress to war hangs on the command of the duke, so in us, the motive power moves the members of the body only at the command of that which rules us, which is the reason, whatever any kind of movement may occur in the lower powers.[46]

Thus, a Christian confronted by a lion in a Roman amphitheater naturally experiences fear. However, he can choose either to stand his ground, blocking his animal instinct to flee, or to apostatize and renounce his faith. This he can do by commanding the motive power to execute or to rescind the movements that naturally follow from fear.

To close this discussion of how the acts of the higher powers are related to those of the lower powers, I should acknowledge without further discussion that for St. Thomas, the passions are neither praiseworthy nor contemptible in themselves.[47] However, they do become meritorious or detrimental to our salvation in so far as these

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[45] *STh* I.75.3 ad 3.

[46] *De veritate* 25.4: "Ex parte motivae exequentis. Sicut enim in exercitu progressio ad bellum pendet ex imperio ducis, ita in nobis vis motiva non movet membra nisi ad imperium eius quod in nobis principatur, id est rationis, qualiscumque motus fiat in inferioribus viribus."

[47] *STh* I-II.24.1.

passions anticipate or proceed from judgments of reason and choice of the will. [48] This is why passions play such an important role in our moral deliberations.

The Emotion of Fear According to Joseph LeDoux[49]

At the top of the chapter, I described Joseph LeDoux's (and contemporary neuroscience's) conundrum: How can neuroscientists define the emotion of fear in a way that incorporates both the unconscious and the conscious dimensions of the emotional experience without falling victim to a dualism that separates biology from psychology? In the end, LeDoux concludes that they cannot. Here, I will summarize his argument for restricting the definition of fear to only the conscious experience that we ordinarily call fear.

LeDoux's narrative begins with a genealogical account that traces two rival but parallel research traditions within 20th century neuroscience. The first tradition, which LeDoux traces back to John Watson, the father of behaviorism, wants to banish all appeals to consciousness from psychology.[50] Emphasizing a single all-purpose account of learning called classical conditioning, the behaviorists conceived of behavior as the reinforced consequences of previous behaviors. They were opposed to assumptions about unobservable events like mental or institutional states inside a subject's head. Instead, they chose to focus on observable and quantifiable events that could be measured and

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[48] Cf. *STh* I-II.77.3-8.

[49] This section is heavily indebted to LeDoux's seminal review and commentary in the *Proceedings of the National Academy of Sciences USA*: "Coming to terms with fear," *Proc. Natl Acad. Sci USA* 111 (2014): 2871-2878.

[50] LeDoux, "Coming to terms with fear," p. 2872.

described in the laboratory. Within this tradition, fear is understood to be a conditional reflex elicited by an external trigger.

In contrast, the second tradition, which LeDoux traces back to Sigmund Freud, is willing to posit the existence of psychological states that intervene between stimuli and responses to explain behavior. Within this tradition, fear is often understood as a learned drive state or a brain motive state. However, leading figures working within this research tradition – LeDoux explicitly attributes this mortal sin to prominent neuroscientist, O. Hobart Mowrer, – openly endowed the state of fear with subjective properties that were said to "cause" behavior. Even authors who seemingly adhered to empirically based approaches, according to LeDoux, wrote about fear in a way that could easily be interpreted to mean that it is a mere subjective feeling. For instance, Mowrer wrote that, "Consciously experienced fear…must invariably be present, in some degree, as the cause of the observed behavior."[51] Not surprisingly, therefore, these "intervening variables" or "learned drive states" became associated with conscious experiences or feelings that were said to motivate or to cause agents to act in particular ways.

In the late 1970s and the early 1980s, researchers working began using a simple experimental protocol called Pavlovian fear conditioning to study fear networks. In Pavlovian fear conditioning, an emotionally neutral conditioned stimulus (CS), usually a sound, is presented in conjunction with a noxious unconditioned stimulus (US), usually a footshock for the rat. After one or several pairings, the CS acquires the capacity to elicit physiological responses usually associated with dangerous threats. These responses

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[51] O.H. Mowrer and R.R. Lamoreaux, "Fear as an intervening variable in avoidance conditioning," *J Comp Psychol* 39 (1946): 29-50. Cited by LeDoux, "Coming to terms with fear," p. 2872.

include defensive behaviors like paralyzing and/or flight responses, and autonomic nervous system responses like increases in blood pressure and/or in heart rate. As LeDoux points out: "The responses are not learned and are not voluntary. They are innate, species-typical responses to threats and are expressed autonomically in the presence of appropriate stimuli."[52] Not surprisingly, according to LeDoux, both research traditions interpreted the learned fear that was at the heart of fear conditioning according to their own paradigms. The behaviorists understood learned fear to be an empirically verifiable construct absent any feeling, while their rivals understood learned fear as an emotional state that caused the conditioned response. Siding with the behaviorists, LeDoux is dismissive of these alleged emotional states because as subjective experiences they are not empirically verifiable.

A critic of this fear-is-a-conscious-feeling tradition, LeDoux argues that we need "to see why this view is neither necessary nor desirable."[53] Fundamentally, he is convinced that "problems arise when we conflate terms that refer to conscious experiences with those that refer to the processing of stimuli and control of responses and assume that the brain mechanisms that underlie the two kinds of processes are the same."[54] Or again, "as long as we use the term fear to refer to the neural mechanisms underlying both conscious feelings and non-conscious threat processing, confusion will occur."[55] Thus, LeDoux proposes that we need to properly define fear so that the subjective conscious feelings we

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[52] Joseph LeDoux, "The Emotional Brian, Fear, and the Amygdala," *Cell Mol Neurobiol* 23 (2003): 727-738, p. 728.
[53] LeDoux, "Coming to terms with fear," p. 2872.
[54] Ibid., p. 2974.
[55] Ibid., p. 2873.

associate with fear are distinguished and isolated from the objective often-unconscious physiological responses we associate with fear.

To justify this proposal to distinguish and to isolate "objective" physiological responses from "subjective" conscious feelings, LeDoux appeals to empirical studies that indicate that the brain circuits that govern the physiological response to fear and the conscious feeling of fear are distinct.

First, there are the experiments done with brain-damaged patients that have revealed that fear conditioning creates implicit (nonconscious) memories that are distinct from explicit/declarative (conscious) memory. [56] They showed that damage to the hippocampus in humans can disrupt explicit conscious memory of having been conditioned without having an effect on fear conditioning itself. In these scenarios, patients who are conditioned to fear certain triggers respond fearfully to these triggers without being able to explicitly identify the triggers that elicit that fear. In contrast, they also showed that damage to the amygdala can disrupt fear conditioning without affecting the agent's conscious memory of having been conditioned. [57] In these scenarios, patients who are conditioned to fear certain triggers are able to explicitly identify the triggers that they had been conditioned to fear, though they do not respond fearfully to these triggers.

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[56] LeDoux cites the following books in support of this claim: Neal J. Cohen and Howard Eichenbaum, *Memory, Amnesia, and the Hippocampal System* (Cambridge, MA: MIT Press, 1993); and Larry R. Squire, *Memory and Brain* (Oxford: Oxford University Press, 1987).

[57] LeDoux cites the following studies in support of this claim: A. Bechara et al., "Double dissociation of conditioning and declarative knowledge relative to the amygdala and hippocampus in humans," *Science* 269 (1995): 1115-1118; and K.S. LaBar et al., "Impaired fear conditioning following unilateral temporal lobectomy in humans," *J Neurosci* 15 (1995): 6846-6855.

Next, there are behavioral studies in healthy humans that have found that conditioned threats presented subliminally can elicit changes in the agent's future behavioral responses without the person being aware of the stimulus and without the person reporting any particular feeling of fear, even when he is explicitly instructed to try to uncover those feelings.[58]

Finally, there is work with individuals with blindness attributable to damage of the visual cortex – their eyes can see light though they cannot see because they are "brain blind" – that have indicated that visual threats can still elicit body responses and amygdala activation in these patients without their being aware either of the stimulus or of any feeling of fear.[59]

For LeDoux, these experiments reveal that human agents can experience the physiological responses associated with fear, without their being consciously aware that they had been exposed to the fear trigger. These studies suggest that the "mechanisms that

[58] LeDoux cites the following studies in support of this claim: R.S. Lazarus and R.A. McCleary, "Autonomic discrimination without awareness: A study of subception," *Psychol Rev* 58 (1951): 113-122; A. Ohman and J.J.F. Soares, "Unconscious anxiety": Phobic responses to masked stimuli," *J Abnorm Psychol* 103 (1994): 231-240; A. Olsson and E.A. Phelps, "Learned fear of 'unseen' faces after Pavlovian, observational, and instructed fear," *Psychol Sci* 15 (2004): 822-828; B. Bornemann, P. Winkielman, and E. van der Meer, "Can you feel what you do not see? Using internal feedback to detect briefly presented emotional stimuli." *Int J Psycholphysiol* 85 (2012): 116-124; and S. Mineka and A. Ohman, "Phobias and preparedness: The selective, automatic, and encapsulated nature of fear," *Biol Psychiatry* 52 (2002): 927-937.

[59] LeDoux cites the following studies in support of this claim: J.S. Morris et al., "Differential extrageniculostriate and amygdala responses to presentation of emotional faces in a cortically blind field," *Brain* 124 (2001): 1241-1252; P. Vuilleumier et al., "Neural response to emotional faces with and without awareness: Event-related fMRI in a parietal patient with visual extinction and spatial neglect," *Neuropsychologia* 40 (2002): 2156-2166; A.O. Hamm et al., "Affective blindsight: Intact fear conditioning to a visual cue in a cortically blind patient," *Brain* 126 (2003): 267-275; and C. Bertini, R. Cecere, and E. Làdavas, "I am blind, but I 'see' fear," *Cortex* 49 (2013): 985-993.

detect and respond to threats are not the same as those that give rise to conscious fear."[60] Therefore, in LeDoux's mind, they indicate that an accurate definition for fear should distinguish our unconscious physiological responses to fear from our conscious feelings of that same emotion, because an accurate definition would acknowledge that different neural circuits drive each phenomenon. As a result, he formally proposes that the conscious feelings we think of as fear should be defined properly as fear, and that the physiological responses associated with fear should be defined and distinguished from fear properly so called, as "a defensive organismic state."[61]

Responding to LeDoux: A Hylomorphic Definition of Pavlovian Learned Fear

Joseph LeDoux has proposed that we should restrict our definition of fear to encompass only those conscious experiences that we ordinarily call a feeling of fear. He thinks that this strategy is robust because it seeks to be faithful to the discoveries of neuroscientists that distinct brain circuits are responsible for the feelings and for the physiological responses that were associated with fear in the past. This may be so, but in my view, his definition leads to other conceptual difficulties. Most significantly, for LeDoux, infants and animals cannot "feel" fear, though they can react in an "fearful" manner, since fear "can only happen in organisms that have the capacity to be aware of brain representations of internal and external events, and may also require the ability to know in a personal, autobiographical senses that the even is happening to them."[62] This corollary of LeDoux's definition of fear is counter-intuitive and in my view, problematic:

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[60] LeDoux, "Coming to terms with fear," p. 2871.
[61] Ibid., p. 2875.
[62] Ibid., p. 2876.

Why is it not reasonable to think that a two-year old recoiling from a cobra in Bangkok is "feeling" the same emotion as a twenty-year old recoiling from a rattler on a hiking trail in Colorado?

In response to LeDoux's definition that limits fear to those conscious feelings linked to the passion, I propose that St. Thomas's hylomorphic account would give LeDoux and his fellow neuroscientists an alternative definition for Pavlovian learned fear that does justice not only to the findings of contemporary neuroscience but also to our lived experience as feeling agents. From my perspective, the fundamental difference between this alternative account and LeDoux's account is that the former emerges from a desire to explain the *phenomenology* of fear while the latter arises from a desire to explain the biological mechanism of the same emotion. [63] This latter approach is reductionist and fails to account for all the dimensions of fear that we experience as persons. As we will see in Chapter Seven, this is not unexpected given the move from a substantial to a mechanistic view of living organisms that has taken place over the past four centuries.

LeDoux is looking for a definition of learned fear that is empirically verifiable. For St. Thomas, a passion is defined not by referring to the presence or to the absence of subjective feelings but by looking to the presence or to the absence of objective appetitive movements and physiological responses that are related to each other as form and matter. With fear, the fearful sheep runs away from the threatening wolf. Flight is an empirically verifiable act of the locomotive power that is caused by an act of the sensitive appetite, mediated by the motive force.

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[63] A similar observation has been made by Robert C. Roberts in his book, *Emotions: An Essay in Aid of Moral Psychology* (Cambridge: Cambridge University Press, 2003).

But is there any scientific evidence for St. Thomas's proposition that a passion is formally, a movement of sensitive appetite in response to a perceived threat, and materially, a physiological response? Is this claim compatibly with 21st century neuroscience? If it were, we would expect that both this appetitive movement and the accompanying physiological response, which by definition are corporeal in nature, would be localized to and mediated by distinct neuronal circuits in the brain. With regard to fear, neuroscientists have identified brain circuits that mediate the human repulsion from a perceived threat, and other circuits, linked to the autonomous nervous system, that govern the body's response to that threat.[64] This finding supports St. Thomas's view.

LeDoux is looking for a definition that can explain the phenomenology of learned fear, especially the data that suggests that it can be learned both unconsciously and consciously, without falling victim to dualism. For St. Thomas fear can only be elicited by the apprehension of some object that is perceived by the human agent as some threatening evil. This is confirmed by our everyday experience. Because of his hylomorphic understanding of the human agent, however, St. Thomas can explain that some evils would be perceived by the particular reason – it would be an act of sensitive cognition without the conscious involvement of the intellect, while other evils would be perceived by both the particular and the universal reason together – it would be an act of intellectual cognition with the full awareness of the acting person. Learned fear can be learned in two distinct ways without either being less of a fear than the other.

But again, is there scientific evidence for a hylomorphic account of human knowing? Do we know consciously and unconsciously? From the experience of non-

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[64] LeDoux, "The Emotional Brain," pp. 730-731.

rational animals, it is clear that St. Thomas's estimative sense – again, it is called the cogitative sense in human agents – can function in the absence of intellectual cognition. Thus, today we would expect that this cognitive sense, if it exists in humans, should be able to function without the involvement of the higher functions of the human brain centered in the neocortex. Indeed, there is empirical evidence that corroborates this expectation. For example, one study has shown that 5-month old human infants are born with innate, evolved spider detection mechanisms, which may have allowed our ancestors to avoid lethal bites.[65] This attentional bias for the detection of spiders has been confirmed in young children and adults.[66] Intriguingly, there is also data that suggests that evolution has molded primate brains – in fact, individual primate neurons – to render them particularly sensitive to snakes.[67]

In toto, this evidence suggests that like their primate cousins, human beings have inherited evolved neuronal circuits that are sensitive to predator detection. Moreover, since these neuronal circuits are already present and functioning in young infants, the scientific evidence suggests that we have a spider-snake avoidance/fear response that operates in the absence of higher cognitive functioning. We can fear spider and snakes intuitively and reflexively! Neuronal circuits like these one would be the physiological basis for St. Thomas's cogitative sense that is able to perceive threatening evils without the involvement of the intellect. And yet, of course, we also have a spider-snake

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[65] D.H. Rakison and J.L. Derringer, "Do infants possess an evolved spider-detection mechanism?" *Cognition* 107 (2008): 381-393.
[66] Vanessa LoBue, "And along came a spider: An attentional bias for the detection of spiders in young children and adults," *J Exp Child Psychol* 107 (2010): 59-66.
[67] L. Van et al., "Pulvinar neurons reveal neurobiological evidence of past selection for rapid detection of snakes," *Proc Natl Acad Sci USA* 110 (2013): 19000-19005.

avoidance/fear response that operates with our complete self-awareness. Thus, we can also fear spiders and snakes consciously. We have two distinct ways of knowing and of learning fear, but one integral way of responding in fear.[68]

Next, though LeDoux is not looking for a definition of learned fear that would be able to explain how human fear and animal fear are similar and different, a hylomorphic definition would be able to do this. For St. Thomas, human agents are rational animals. Not surprisingly, therefore, they would be able to know and to experience fear as animals do. Because they are animals, they would instinctively flee from perceived threats, and they would experience physiological changes in response to this threat. This would be mediated by the particular reason. This would justify our everyday view that animals experience fear in the way that we do. Because human agents are rational animals, however, they would be able to regulate their fear with their intellects and their will. This would be mediated by both the particular and the universal reason.

Finally, it is likely that LeDoux would be worried that aligning animal fear and human fear would allow neuroscientists to smuggle consciousness into their research program. He is already suspicious of the ambiguous claims of those investigators who think that consciousness motivates fear. However, making the hylomorphic claim that there are similarities between human and animal learned fear does not mean that conditioned human agents and conditioned animal models are conscious of their fear in

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[68] One possibility is that the memory of the knowing is located in the hippocampus while the response to the knowing is located in the amygdala. This would explain the experiments in brain-damaged patients summarized above that seem to dissociate the memory of the conditioning from the fear conditioning itself.

the same way. It simply states that they both objectively respond to threats in a similar but not identical manner.

<u>Postscript: Reconceptualizing the Cogitative Sense in Light of Neuroscientific Data</u>

My discussion of sense cognition and its relationship to the passion of fear relies heavily on my claim that the human agent can know a threat intuitively as the sheep intuitively knows the wolf. It is not clear if St. Thomas would hold this view. He makes a strong distinction between the estimative sense of the animals and the cogitative sense of the human agent, where the former knows intuitively and the latter knows not intuitively but through some collation of ideas (*per quandam collationem*):

> As to sensible forms, there is no difference between human beings and other animals for they are similarly altered by external sensibles. But as to the intentions, there is a difference for other animals perceive them solely according to the natural instinct while human beings perceive them through a collation of ideas.[69]

The human cogitative sense differs radically from the animal estimative sense because the former, in St. Thomas's view, is "intellectualized" in that it is permeated through and influenced by the power of the intellect. The Angelic Doctor explains: "The cogitative and memorative powers in the human being are eminent not because of what is proper to the sensitive part but through a certain affinity and proximity to the universal reason,

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[69] *STh* I.78.4: "Quantum ad formas sensibiles, non est differentia inter hominem et alia animalia, similiter enim immutantur a sensibilibus exterioribus. Sed quantum ad intentiones praedictas, differentia est, nam alia animalia percipiunt huiusmodi intentiones solum naturali quodam instinctu, homo autem etiam per quandam collationem."

according to some sort of overflow. Therefore they are not distinct powers, but the same, and yet they are more perfect than in the other animals."[70]

A recent commentator in the Thomistic tradition, Robert Miner imagines that the particular reason is able to arrive at estimations of utility or of danger "by associating sensible forms, neutral in themselves, with stored images that are charged with pleasure or pain."[71] Notably, however, it is clear that for Miner, this process of association involves learning. It is not intuitive. Describing a child's learning of the danger of fire, he describes it this way:

> Unlike the sheep who avoids the wolf by instinct, Louisa has no instinct
> that leads her to avoid touching the fire. On the contrary, she learns this by
> collation of the sensible forms attached to the fire with other sensible
> images that have previously caused by pain. Through this process of
> discovery by the particular reason, Louisa has learned to protect herself
> from some significant dangers, well before her universal reason has
> developed in any significant way.[72]

For Miner, cogitative sense learns. And if it learns, it cannot intuit knowledge.

Another contemporary commentator, Robert Pasnau would agree. He points out that for St. Thomas, the cogitative sense "lies at the boundary of sense and intellect, capable of intellect's rational comparisons and contrasts, but incapable of intellect's

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[70] *STh* I.78.4 ad 5: "Illam eminentiam habet cogitativa et memorativa in homine, non per id quod est proprium sensitivae partis; sed per aliquam affinitatem et propinquitatem ad rationem universalem, secundum quandam refluentiam. Et ideo non sunt aliae vires, sed eaedem, perfectiores quam sint in aliis animalibus."
[71] Miner, *Thomas Aquinas on the Passions*, p. 78.
[72] Ibid., p. 79.

universality."[73] It has a particularly important role in human reasoning, especially practical reasoning, because it directly apprehends particulars in order to prepare phantasms for the intellect.[74] For Pasnau, the particular reason does not know anything intuitively.

As I discussed above, however, there is data from neuroscience that suggests that human beings do have innate predator-detection systems that can grasp that threat of a snake or a spider at first encounter. In my view, this information should move us to reconceptualize St. Thomas's understanding of the cogitative power. I propose that cogitative power, like the locomotive power, can act both alone and together with the intellect. As we saw in the previous chapter, St. Thomas distinguishes acts of the locomotive power into acts that are an act of a man (*actus hominis*) and acts that are properly a human act (*actus humanus*), where the former occurs reflexively and the latter occurs with the full participation of the intellect and of the will. In the same manner, I propose that acts of the cogitative power can be distinguished in the same way. There would be acts of the cogitative power that are intuitive – as the acts of the estimative power in the brute animals are – and then there would be acts of the cogitative power that are collative. Learned fear can be learned in two distinct ways because the cogitative power can know in two distinct modes.

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[73] Robert Pasnau, *Thomas Aquinas on Human Nature* (Cambridge: Cambridge University Press, 2002), p. 254.
[74] *STh* I-II.50.4 ad 3.

<u>Conclusion</u>

In this chapter, I have used a hylomorphic reconstruction of St. Thomas's account of the passions, in themselves, and in their relationship to human knowing and to human choosing, to propose a solution to a disputed question in contemporary neuroscience. In doing so, I have also proposed revisions to St. Thomas's synthesis that allows it to be brought into conversation with 21st century science. In the next chapter, I return to a more classical discussion, this time of the hylomorphic framework used by St. Thomas to understand the virtues. It will illustrate how an understanding of hylomorphic theory and its analogous use in St. Thomas's moral theology can clarify and resolve another disputed contemporary moral questions as well as illuminate other dimensions of St. Thomas's theological synthesis.

CHAPTER FOUR

How is the Human Intellect Transformed in the Life of Grace?
A Hylomorphic Investigation of the Acquired and the Infused Virtues

<u>Introduction</u>

As a Catholic priest serving as a faculty member at a Catholic liberal arts college, I have had the privilege of witnessing the conversions of several undergraduate students that were accompanied by radical changes in their behavior. Moreover, given their ages and their cultural environment, it should not be surprising that these behavioral changes were most evident in their sexual practices: I have seen students addicted for many of their teenage years to unchaste acts become continent overnight! They unanimously attribute this unexpected (and liberating!) change in themselves to the power of God's grace. But does this change to the life of grace also alter these students' intellects? Does it transform the life of the mind?

How does the Catholic moral theologian explain these transformations from vice to virtue in the Christian who begins to live the life of grace? To help account for this transformation, St. Thomas famously proposed that infused moral virtues were given to the believer along with habitual grace, gratuitous grace, the theological virtues, and the gifts of the Holy Spirit.[1] However, this theory has also raised novel philosophical and

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[1] Other theologians, including most prominently, Duns Scotus, have rejected the doctrine of infused moral virtuous as superfluous, proposing instead that the giving of the theological virtues of faith, hope, and charity, can sufficiently explain the new life of grace. For discussion of Scotus's alternative account of the virtues in the life of grace see, Bonnie Kent, "Rethinking Moral Dispositions: Scotus on the Virtues," in *The Cambridge Companion to Scotus,* ed. T. Williams (Cambridge: Cambridge University Press, 2003), pp. 352-376.

theological questions regarding the cooperative relationship or lack thereof between these infused moral virtues and the acquired moral virtues that exist in all human beings to a greater or a lesser degree.

In this chapter, I investigate the hylomorphic framework used by St. Thomas to understand the virtues. I begin with a narrative of St. Thomas's hylomorphic account of the essence of virtue and of the species of virtues. I will focus on his categorization of the virtues according to their material cause and then of their efficient cause. I then move to a hylomorphic investigation of the relationship between individual virtues before turning to an exploration of the cooperative interaction between the acquired and the infused moral virtues. For the latter analysis, I will summarize and evaluate two proposals by Fr. George Klubertanz, S.J., and Sr. Renée Mirkes, O.S.F., who use matter-form language to describe this cooperative interaction and conclude that the first account is the better of the two. I also consider the genealogical relationship between the infused virtues and their acquired counterparts: Does an infused virtue necessarily presuppose the existence of its natural correlate?

Finally, I build on this analysis and conclude this chapter by exploring the relationship between the acquired and the infused intellectual virtues, precisely to determine how grace alters the life of the mind. I propose that the theological virtue of faith, informed by the theological virtue of charity, and capacitated by the gifts of understanding, of sure knowledge, and of wisdom, takes their place as the infused counterpart for acquired understanding, acquired sure knowledge, and acquired wisdom. Therefore, I argue that only a Christian in the state of grace can do theology, properly understood. Moreover, given the dynamic relationship between the infused virtues and

their acquired counterparts, my proposal also suggests that theological reasoning can facilitate philosophical reasoning in the practice of Christian philosophy without violating its proper autonomy. This is one way of understanding the Catholic Church's firm conviction that faith can legitimately assist reason without violating the proper autonomy of each. Like Chapter Two, this chapter will illustrate how an understanding of hylomorphic theory and its analogous use in St. Thomas's moral theology can allow us to clarify and to resolve disputed questions in contemporary theology.

The Hylomorphic Structure of Thomistic Virtue

As we saw in Chapter Two, in St. Thomas's view, the human being is created with spiritual powers of intellect and will that are ordered towards the universal true and the universal good respectively, who is God alone.[2] Thus, in this life, these spiritual powers have an indeterminate potency to a potentially infinite number of human acts: "But the rational powers, which are proper to man, are not determinate to one, but are inclined indeterminately to many."[3] In this way they are akin to prime matter, which as we saw in Chapter One, has a radical potency to a potentially infinite number of substantial forms.

However, given that the good is unique and evil manifold, one consequence of this indetermination within the human agent's spiritual powers is that it is more likely than not that he will do what is wrong rather than what is right since it is easier to miss the target than to score a bulls-eye. To remedy this metaphysical weakness in the human creature absent grace, St. Thomas posited the existence of virtues that would dispose the

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[2] *STh* I-II.2.8.
[3] *STh* I-II.55.1: "Potentiae autem rationales, quae sunt propriae hominis, non sunt determinatae ad unum, sed se habent indeterminate ad multa." Also, *STh* I-II.49.4 ad 2.

powers of the soul of the human agent towards the good, where a virtue is defined as an operative *habitus*[4] in a power of the soul that disposes that power to the production of good acts.[5] An operative *habitus* is a *habitus* that is directed towards activity. Thus, the virtue of justice predisposes the agent to acts of justice, while the virtue of fortitude predisposes him to acts of courage. Moreover, as all virtues do, these virtues predispose the agent so that he can act justly and courageously in a spontaneous, easy, and joyful manner.

To comprehend St. Thomas's definition of virtue further, we have to return to Aristotle, who categorized a *habitus* as "a disposition whereby that which is disposed is disposed to good or to evil, and this, either in regard to itself or in regard to another."[6] It is a disposition that belongs to the metaphysical category of a quality, which is an accidental mode of substantial being. Acquired over time through the repetition of acts of an appropriate kind, a *habitus* can become a second nature for the individual that predisposes the powers of his soul to further acts of that same kind. To put it another way, a virtue is a *habitus* standing midway between the potency and the act of a soul's power that orients it towards good acts. In this way, a virtue is akin to a form, which as we saw in Chapter One, gives specification to prime matter.

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[4] *STh* I-II.55.2. Though *habitus* is often translated with the English word, 'habit', I have chosen to retain the Latin term here because the English word can suggest that a *habitus* is a routine or mechanical or non-intentional but repetitive performance of a trivial act, which it is not. Rather it is a stable disposition that orders the agent towards acts of good or of evil. For discussion, see Servais Pinckaers, O.P., "Virtue is Not a Habit," Trans. Bernard Gilligan, *Cross Currents* 12 (1962): 65-81.

[5] Cf. *STh* I-II.55.1-3.

[6] *STh* I-II.49.1: "Dispositio secundum quam bene vel male disponitur dispositum et aut secundum se aut ad aliud." [Quoting Aristotle's Metaphysics V.]

As a *habitus*, a virtue disposes a spiritual power to different operations. Since the same power is capable of distinct operations, there may be several virtues in the one power. This follows from St. Thomas's hylomorphic account of the virtues:

> For a passive power is compared to the determinate act of any one species, as matter to form, because, just as matter is determinate to one form by one agent, so, too, is a passive power determined by the nature of one active object to an act specifically one. Hence, just as several objects can move one passive power, so can one passive power be the subject of several acts or specifically diverse perfections. Now habits are qualities or forms adhering inherently to a power, and inclining that power to determinate acts according to species. Consequently several habits can belong to one power, even as several specifically different acts.[7]

Thus, distinct virtues in the same power must be distinguished from each other by their objects, which are those particular realities to which the virtue orders a power of the soul. As an example, the object of the virtue of sobriety is concerned with drink, not any kind of drink, but only those that are intoxicating by their nature.[8] Significantly, for St.

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[7] *STh* I-II.54.1: "Potentia autem passiva comparatur ad actum determinatum unius speciei, sicut materia ad formam, eo quod, sicut materia determinatur ad unam formam per unum agens, ita etiam potentia passiva a ratione unius obiecti activi determinatur ad unum actum secundum speciem. Unde sicut plura obiecta possunt movere unam potentiam passivam, ita una potentia passiva potest esse subiectum diversorum actuum vel perfectionum secundum speciem. Habitus autem sunt quaedam qualitates aut formae inhaerentes potentiae, quibus inclinatur potentia ad determinatos actus secundum speciem. Unde ad unam potentiam possunt plures habitus pertinere, sicut et plures actus specie differentes."

[8] *STh* II-II.149.1.

Thomas, the objects of virtue are the objects, i.e., the ends, of the internal acts of the will described in Chapter Two:

> As the Philosopher says…the end is, in practical matters, what the principle is in speculative matters. Consequently a diversity of ends demands a diversity of virtues, even as a diversity of active principles does. Moreover the ends are objects of the interior acts, with which, above all, the virtues are concerned.[9]

Recall from Chapter Two that the human act is a hylomorphic composite with an interior act as formal principle and with an exterior act as material principle. Virtues dispose the powers of the agent cause so that his interior acts are always ordered according to right reason.

In the end, and I emphasize it again here for the purposes of this dissertation, for St. Thomas, a virtue can be understood hylomorphically – in an analogous manner, of course – as a form that informs a spiritual power of the soul. As we will see below, this conceptual framework will be the basis for the other hylomorphic relationships that relate not only individual virtues to each other but also individual categories of virtues to each other.

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[9] *STh* I-II.54.2: "Sicut philosophus dicit…ita se habet finis in operabilibus, sicut principium in demonstrativis. Et ideo diversitas finium diversificat virtutes sicut et diversitas activorum principiorum. Sunt etiam ipsi fines obiecta actuum interiorum, qui maxime pertinent ad virtutes, ut ex supradictis patet."

An Aristotelian Characterization of Thomistic Virtue

As an Aristotelian is apt to do, the Angelic Doctor decomposed a virtue into its four causes by examining the definition of virtue offered by St. Augustine, who taught: "Virtue is a good quality of the mind, by which we live rightly, of which no one can make bad use, which God works in us, without us."[10] It is an illuminating look at St. Thomas's hylomorphic understanding of virtue.

First, as a *habitus* that disposes a spiritual power towards good acts, a virtue in itself is a formal cause:

> For the formal cause of virtue, as of everything, is gathered from its genus
>
> and difference, when it is defined as a good quality, for quality is the genus
>
> of virtue, and the difference, good. But the definition would be more
>
> suitable if in place of quality, we substitute habit, which is the proximate
>
> genus.[11]

As a form, a virtue determines and orients a spiritual power towards its proper operation according to the rule of reason. This will be important below when we consider the differences between the acquired and the infused virtues.

Next, though virtue does not have matter "out of which" it is formed, St. Thomas will acknowledge that it has matter "about which" it is concerned, and matter "in which" it exists. The matter "about which," the *materia circa quam*, is the object of a virtue, i.e.,

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[10] *STh* I-II.55.4 ob 1: "Virtus est bona qualitas mentis, qua recte vivitur, qua nullus male utitur, quam Deus in nobis sine nobis operatur."

[11] *STh* I-II.55.4: "Causa namque formalis virtutis, sicut et cuiuslibet rei, accipitur ex eius genere et differentia, cum dicitur qualitas bona, genus enim virtutis qualitas est, differentia autem bonum. Esset tamen convenientior definitio, si loco qualitatis habitus poneretur, qui est genus propinquum."

that to which the virtue relates: "Now virtue has no matter 'out of which', as neither has any other accident, but it has matter 'about which', and matter 'in which', namely, the subject. The matter 'about which' is the object of virtue."[12] Thus, as noted earlier, the object of the virtue of sobriety is concerned with drink, not any kind of drink, but only those that are intoxicating by their nature; the object of the virtue of justice is that which is due to another; and the object of the virtue of fortitude is the fear of difficult things, especially the dread of death.

The matter "in which," the *materia in qua*, is the subject of the virtue, which is the spiritual power that it predisposes: "And so for material cause we have the subject, which is mentioned when we say that [virtue] is a good quality of the mind."[13] Later in the *Summa theologiae*, the Angelic Doctor will specify that the subject of a virtue is properly the will or some other power of the soul insofar as it is moved by the will.[14] Thus, the will, the intellect, and the sensitive appetites of the soul are the human faculties that can be subjects of virtue in the same way that prime matter can be subject of form.[15]

Third, according to the Angelic Doctor, the final cause of virtue since it is an operative habit, is its operation, which for a virtue, is the good, "by which we live rightly." Thus, the final cause of sobriety is the moderate drinking of intoxicating drink, the final cause of justice is the giving to another what is due, and the final cause of fortitude is the enduring of great dangers especially death.

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[12] Ibid.: "Virtus autem non habet materiam ex qua, sicut nec alia accidentia, sed habet materiam circa quam; et materiam in qua, scilicet subiectum. Materia autem circa quam est obiectum virtutis."
[13] Ibid.: "Unde ponitur subiectum loco causae materialis, cum dicitur quod est bona qualitas mentis."
[14] *STh.* I-II.56.3.
[15] *STh.* I-II.56.3-6.

Lastly, as for the efficient cause, St. Thomas will make the distinction between the acquired and infused virtues, a distinction we will examine in greater detail below. For the acquired virtues, the efficient cause is the agent himself, who in performing good acts acquires the virtues, while for the infused virtues, the efficient cause is God, who in freely giving us the infused virtues, works "in us, without us."

Categorizing the Thomistic Virtues According to their Material Cause

Turning from the essence of virtue to the species of virtues, St. Thomas categorized the virtues in at least four ways.[16] They can be classified (1) according to their material cause, specifically the *materia in qua,* i.e., according to whether they are intellectual or moral virtues; (2) according to their efficient cause, who is either the human agent himself or the God who has redeemed him in the blood of the Lamb, i.e., whether they are acquired or infused virtues; (3) according to their object, i.e., whether they are theological or non-theological virtues; or (4) according to their final cause, i.e., whether they are natural or supernatural virtues. The first two schemas will be emphasized here because they are, in my view, the more fundamental categories of Thomistic virtue.

In the first schema, the virtues are categorized according to their material cause, specifically the *materia in qua*, i.e., the subject of the virtues. This distinction has roots in Aristotle's division, made in Book IV of his *Nicomachean Ethics* between virtues that enhance the agent's expertise in his scientific, artistic, and technical endeavors, called the

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[16] For helpful discussion and background, see William C. Mattison, III, "Thomas's Categorizations of Virtue: Historical Background and Contemporary Significance," *The Thomist* 74 (2010): 189-235.

intellectual virtues, and those that rectify his desires, his emotions, and his choices, called the moral virtues.[17]

The virtues that inform the speculative intellect are called the intellectual virtues.[18] They perfect it so it is better predisposed towards the grasping of and reasoning to truth, which is its good work, i.e., its operation.[19] St. Thomas calls these five intellectual virtues, understanding, sure knowledge, speculative wisdom, art, and prudence.[20] Understanding or intuitive insight, *intellectus* in Latin, is that virtue that perfects the intellect so that the thinking agent can spontaneously, easily, and joyfully grasp the first principles of knowledge, such as the whole is greater than its parts. Sure knowledge, *scientia* in Latin, is that virtue that perfects the intellect so that the thinking agent can reason from first principles to sure conclusions. Wisdom, *sapientia* in Latin, is that virtue that perfects the intellect so that it can order and understand all knowledge from the perspective of the first cause who is God. Finally, the intellectual virtues of art, *ars* in Latin, and of prudence, *prudentia* in Latin, perfect the intellect and predispose the thinking agent either to craft works of skill well or to act well, respectively.

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[17] *STh* I-II.58.3.

[18] For discussion, see Gregory M. Reichberg, "The Intellectual Virtues IIa IIae, qq.57-58)" in *The Ethics of Aquinas,* ed. Stephen J. Pope (Washington, D.C.: Georgetown University Press, 2002), pp. 131-150.

[19] *STh* I-II.57.1-2. Strikingly, St. Thomas posits that the intellectual virtues are only virtues in a qualified sense because they only fulfill the first of two necessary conditions for a virtue, i.e., a virtue confers aptness on a power in doing good, and a virtue confers the right use of that power. The intellectual virtues only fulfill the former but not the latter condition for a true virtue. As such, they are virtues, but only in a qualified sense.

[20] *STh* I-II.57.2-4.

Next, those virtues that inform the spiritual appetite and the sensitive appetites are called the moral virtues.[21] They order our desires so that we spontaneously, easily, and joyfully desire the good and then act to attain it.[22] They are also important because they help the acting person to regulate his emotions, which as we saw in greater detail in Chapter Three, are those bodily movements classically called the passions of the soul.[23] As Etienne Gilson, the distinguished 20th century Thomist and medievalist, observed: "When the moralist comes to discuss concrete cases, he comes up against the fundamental fact that man is moved by his passions. The study of the passions, therefore, must precede any discussion of moral problems."[24]

Given their function to build the character of the acting person, St. Thomas thinks that each of the moral virtues can be described hylomorphically. Each of them has a formal and a material element that emerges from their role in ordering the appetites:

> In these [moral] virtues there is a formal principle, and a quasi-material
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> principle. The material principle in these virtues is a certain inclination of
>
> the appetitive part to the passions or operations according to a certain

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21 *STh* I-II.58.1.

22 *STh* I-II.58.2.

23 For an extensive discussion of the nature of the passions in the Thomist tradition, see Robert Miner, *Thomas Aquinas on the Passions: A Study of Summa Theologiae, 1a2ae 22-48* (Cambridge: Cambridge University Press, 2009); and Nicholas E. Lombardo, O.P., *The Logic of Desire: Aquinas on Emotion* (Washington, D.C.: The Catholic University of America, 2011).

24 Etienne Gilson, *The Christian Philosophy of St. Thomas Aquinas*, Trans. L.K. Shook, C.S.B. (New York: Random House, 1956), p. 271.

mode. But since this mode is determined by reason, the formal principle in

all virtues is precisely this order of reason.[25]

Understood analogously, the order of reason habituates an appetite and directs it to its

proper end in the same way that a substantial form determines a being and orders it

towards its specific *telos*.

A handful of the moral virtues, namely, prudence, justice, fortitude, and

temperance, are called cardinal virtues because they are those principal virtues upon

which the moral life pivots.[26] They imply rectitude of appetite. Prudence, *prudentia* in

Latin, is the virtue that disposes the individual, not only to discern the true good in every

circumstance, but also to choose the right means of achieving it.[27] It is the virtue that

facilitates good human acts. It allows the acting person to intend, to deliberate, to decide,

and to execute this particular act well, here and now, with his and his community's

authentic good in mind. Next, justice, *iustitia* in Latin, is the virtue that disposes the

individual to give to God and to neighbor that which is properly due to both of them.[28]

Fortitude, *fortitudine* in Latin, is the virtue that disposes the individual to remain firm in

the face of difficulty and to remain constant in the pursuit of good.[29] It moderates the

passion of fear allowing the individual to act in a morally upright manner even when he is

frightened. Fortitude strengthens his resolve to do the good even in the face of

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[25] *STh* I-II.67.1: "In huiusmodi virtutibus aliquid est formale; et aliquid quasi materiale. Materiale quidem est in his virtutibus inclinatio quaedam partis appetitivae ad passiones vel operationes secundum modum aliquem. Sed quia iste modus determinatur a ratione, ideo formale in omnibus virtutibus est ipse ordo rationis."
[26] *STh* I-II.61.1.
[27] *STh* I-II.47.4.
[28] *STh* I-II.58.1.
[29] *STh* I-II.123.1.

temptations or of strong emotions that may dispose him to do otherwise. Fourth and finally, temperance, *temperantia* is Latin, is the virtue that disposes the individual to moderate the attraction of bodily pleasures.[30] It steels his will, allowing him to master his instincts and to keep his desires within the limits of what is reasonable and honorable.

To summarize, this first schema of Thomistic virtues distinguishes the virtues according to the spiritual power that they inform and according to the operation to which they are ordered. As I noted earlier, this is a schema closely aligned to the pagan schema of virtues proposed by the ancient Greeks. Not surprisingly, however, Christian theologians seeking to accommodate this pagan account had to transform it to explain the reality of grace, where God works "in us, without us."[31]

<u>Categorizing the Thomistic Virtues According to their Efficient Causes</u>

In his second, more explicitly Christian, schema, St. Thomas proposed that the virtues can be distinguished according to their efficient cause, which is either the human agent himself or the God who redeemed him in the blood of the Lamb. The former virtues are designated the acquired virtues, while the latter are called the infused virtues.

First, we consider the acquired virtues. Recall from Chapter One that for St. Thomas, substantial form is the metaphysical principle of finality that explains the directedness, the teleology, of things. As he explained in his commentary on Aristotle's *De Anima*, the soul is the final cause of the body: "As the intellect works for an end, so does nature. But the intellect in its constructions orders and arranges matter according to

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[30] *STh* I-II.141.1.
[31] *STh* I-II.55.4.

form, so also does nature. If the soul is the form of a living body, it follows that it is also its final cause."[32] Or again, "a soul is not only the form and mover of its body, but also its end."[33] Thus, the human soul and therefore also its powers, which are in themselves the soul's potencies to particular acts, are inherently disposed, i.e., inherently inclined, to ends that are connatural to the soul's nature. St. Thomas itemizes these natural inclinations as those ordered towards the good, towards self-preservation, towards true and certain knowledge of the world, towards life in society, and towards God, among others.[34] These proper objects of the natural inclinations constitute the ends perfective of human nature.

As we explained above, however, regardless of their connatural inclinations, the powers of the soul have an indeterminate potency to a potentially infinite number of human acts. To put it another way, absent the Beatific vision, the soul has an indetermination within itself that predisposes it to different ways of acting. Thus, a human agent needs to acquire virtues – aptly named the acquired virtues, both intellectual and moral – that properly direct and dispose him towards good acts that are

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[32] *In DA*, Bk 2. Lect. 7. no. 13: "Sicut enim intellectus operatur propter finem, ita et natura, ut probatur in secundo physicorum. Sed intellectus in his quae fiunt per artem, materiam ordinat et disponit propter formam: ergo et natura. Cum igitur anima sit forma viventis corporis, sequitur quod sit finis eius."

[33] *DA*, Q8: "Anima non solum est corporis forma et motor, sed etiam finis."

[34] *STh* I-II.94.2.

rightly ordered towards those ends that by nature are perfective of him.[35] These are

virtues that direct the human agent towards life in human society.[36]

How does a human agent acquire the acquired virtues? As St. Thomas explains, a

habitus can be caused in an agent whose acts have both an active and a passive principle.[37]

Once active and passive principles are present in an agent, repetitive acts by the agent

working from these principles engender the *habitus* so that the passive principle is more

or less disposed towards those ends that perfect it.[38] According to the Angelic Doctor, in

the case of the intellectual virtues, a *habitus* is caused in the intellect as a passive principle

when it is moved by self-evident first propositions working as active principles, while in

the case of the moral virtues, a *habitus* is caused in the rational and sense appetites as

passive principles when they are moved by the intellect working as the active principle.[39]

These natural potencies, called the "seeds of virtues" by St. Thomas,[40] are the basis of the

acquisition of any human virtue. In both kinds of acquired virtue, it is the human agent

who engenders the specific virtues in himself by undertaking repetitive good acts that are

in accord with right reason.

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[35] For insightful discussion on the function of moral virtue, see Jeffrey Hause, "Aquinas on the Function of Moral Virtue," *American Catholic Philosophical Quarterly* 81 (2007): 1-20.

[36] For recent scholarly debate on the nature of the acquired or pagan virtues and whether the pagan could acquire genuine virtues, see the following representative papers: Brian Shanley, O.P., "Pagan Virtue," *The Thomist* 63 (1999): 553-577; Thomas Osborne, "Aquinas's Augustinian Moral Theory," *The Thomist* 67 (2003): 279-305; Angela McKay, "Prudence and Acquired Moral Virtue," *The Thomist* 69 (2005): 535-555; Thomas Osborne, "Perfect and Imperfect Virtues in Aquinas," *The Thomist* 71 (2007): 39-64; and Angela McKay Knobel, "Aquinas and the Pagan Virtues," *International Philosophical Quarterly* 51 (2011): 339-354.

[37] *STh* I-II.51.2.

[38] Ibid.

[39] Ibid.

[40] *STh* I-II.51.1. Also see *STh* I-II.63.1.

In my view, one can bring this analysis together and describe the acquisition of an acquired virtue, in this case of an acquired moral virtue, as follows: First, the agent's intellect operating by the natural *habitus* of *synderesis* comprehends the connatural ends to which the appetitive powers of his soul are inclined, and grasps them as the first principles of practical reasoning.[41] In this way, he perceives and understands the fundaments of the natural law.[42] Through repetitive good acts ordered towards these ends by the virtue of prudence, he then causes particular moral virtues within his appetitive powers, which habituates them towards those ends perfective of their nature.[43] In this way, his future acts, which by nature are rooted in and emerge from the powers of his soul, are more spontaneously, more easily, and more joyfully ordered towards the realization of these ends determined by right reason. The human being has to habituate his nature so that he is predisposed to attain those proper objects that naturally perfect him.

To illustrate this narrative, consider a specific example. James is a college student seeking virtue. Using his intellect, he comes to understand the connatural ends that are perfective of his sexual appetite, which are the unitive and procreative ends of marriage. He then acquires the virtue of chastity by prudentially and repetitively acting in such a way that his carnal power is ordered according to right reason. From an Aristotelian

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[41] For a recent discussion of *synderesis* and its role in grasping the first practical principles of natural law, see Tobias Hoffman, "Conscience and Synderesis," in *The Oxford Handbook of Aquinas,* ed. Brian Davies and Eleonore Stump (Oxford: Oxford University Press, 2012), pp. 255-264.

[42] *STh* I-II.94.2.

[43] *STh* I-II.94.3. For the augmentation of acquired virtue by repeated actions, see *STh* I-II.51.2-3. For discussion, see Angela M. McKay, "Synderesis, Law, and Virtue," in *The Normativity of the Natural: Human Goods, Human Virtues, and Human Flourishing*, ed. Mark J. Cherry (Austin, TX: Springer, 2009), pp. 33-44.

perspective, the intellect of the college student seeking virtue would be acting as the efficient cause to cause the virtue of chastity, as a formal cause, in the appetitive power, as the material cause, in order to realize the perfection of the appetite, not only in itself but in the student's future acts, which would be the final cause.

Note that for St. Thomas, the acquired virtues not only have reason as their cause but they also have it as their rule. It is their cause because the intellect causes the virtues to come to be in the powers of his soul through repetitive action. And it is their rule – understood here as the standard which virtue brings the human being into conformity with[44] – because it is reason that grasps the proper ends that are perfective of the powers of the agent, thus determining if an act is perfective or disruptive of that power.[45] It is reason that specifies and fixes the mean of the virtue.[46] As St. Thomas points out: "The good of intellectual and moral virtues consists in a mean of reason by conformity with a measure."[47] We can therefore say that the acquired virtues, both intellectual and moral,

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[44] Recall that for St. Thomas, a virtue is a *habitus* that is a certain mode of substance called a quality. However, one cannot speak of a mode of a substance without referring to some standard that that substance can be brought into conformity with. Cf. *STh* I-II.49.2.

[45] *STh* I-II.63.2.

[46] *STh* I-II.63.4.

[47] *STh* I-II.64.4 ad 1: "Bonum virtutum intellectualium et moralium consistit in medio per conformitatem ad regulam." St. Thomas also writes: "The nature of virtue is that it should direct the human being to good. Now moral virtue is properly a perfection of the appetitive part of the soul in regard to some determinate matter. The measure or rule of the appetitive movement in respect of appetible things is reason itself…Hence it is evident that the good of moral virtue consists in conformity with the rule of reason. Now it is clear that between excess and deficiency the mean is equality or conformity. Therefore it is evident that moral virtue observes the mean." *STh* I-II.64.1: Virtus de sui ratione ordinat hominem ad bonum. Moralis autem virtus proprie est perfectiva appetitivae partis animae circa aliquam determinatam materiam. Mensura autem et regula appetitivi motus circa appetibilia, est ipsa ratio…Et ideo patet quod bonum virtutis moralis consistit in adaequatione ad mensuram rationis. Manifestum est autem quod

are stable and lasting dispositions in the powers of the soul that habituate it to follow the dictates of right reason so that the human agent may attain those ends that are perfective of his nature.

We now move to consider the infused virtues.[48] As we noted earlier in this chapter, St. Thomas famously proposed that the infused virtues were also given to the Christian believer along with the habitual grace that justifies him. To understand the Angelic Doctor's argument for the necessary existence of these infused virtues in the life of grace, we must begin with his teaching that habitual grace (*gratia gratum faciens*) is akin to a *habitus* that comes to be in a person's soul so that he may be ordered towards the eternal good who is God:

> Now [God] so provides for natural creatures, not only as He moves them to their natural acts, but also as He bestows upon them certain forms and powers, which are the principles of acts, so that they may themselves be inclined to these movements. Thus the movements whereby they are moved by God become connatural and easy to creatures, according to Wisdom 8:1: "She . . . orders all things sweetly." Much more therefore does He infuse into them as He moves them towards the acquisition of a supernatural eternal good, certain forms or supernatural qualities,

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inter excessum et defectum medium est aequalitas sive conformitas. Unde manifeste apparet quod virtus moralis in medio consistit.

[48] For a contemporary defense of the infused virtues, see Michael Sherwin, O.P., "Infused virtue and the effects of acquired vice: A test case for the Thomistic theory of infused cardinal virtues," *The Thomist* 73 (2009): 29-52.

according to which they may be moved by Him sweetly and promptly to

acquire eternal good. Thus the gift of grace is a quality.[49]

Analogously understood, therefore, habitual grace is a form.[50] It is not a substantial, but

an accidental determination. However, in contrast to a virtue, which is a form in a power

of the soul, for St. Thomas, habitual grace is a form in the *essence* of the soul.[51] It allows

the Christian believer to participate albeit inchoately in the divine nature.[52] Thus, it would

not be inaccurate for us to say that if the virtues are "accidental" forms of the soul, then

habitual grace is a "substantial" form of the soul, analogously understood, of course.

Recall, however, that the substantial form is the metaphysical principle of finality that

explains the directedness, the teleology, of things. Thus, by definition, the new

supernatural "substantial" form in the soul, i.e., the habitual grace that is given to justify

the Christian believer, needs to order the soul to a new end unlike the end specified by the

natural substantial form, which is the soul itself. For St. Thomas, this new end is the

supernatural end that is the beatific vision of the Triune God.[53]

As I explained above, the acquired virtues are those virtues that properly dispose

the human agent towards good acts that are rightly ordered to attaining those ends that

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[49] *STh* I-II.110.2: "Creaturis autem naturalibus sic providet ut non solum moveat eas ad actus naturales, sed etiam largiatur eis formas et virtutes quasdam, quae sunt principia actuum, ut secundum seipsas inclinentur ad huiusmodi motus. Et sic motus quibus a Deo moventur, fiunt creaturis connaturales et faciles; secundum illud Sap. VIII, et disponit omnia suaviter. Multo igitur magis illis quos movet ad consequendum bonum supernaturale aeternum, infundit aliquas formas seu qualitates supernaturales, secundum quas suaviter et prompte ab ipso moveantur ad bonum aeternum consequendum. Et sic donum gratiae qualitas quaedam est."
[50] *STh* I-II.110.2 ad 1.
[51] *STh* I-II.110.4. The later scholastics would call a virtue (and a vice) an operative *habitus* and habitual grace an entitative *habitus* to make this distinction even clearer.
[52] *STh* I-II.110.4.
[53] *STh* I-II.5.1.

by nature are perfective of him. By definition, therefore, these virtues can only attain the human agent's natural ends. Hence, for St. Thomas, the gift of habitual grace, as a form that orders the soul to supernatural ends that far transcend the natural ends uncovered in the principles of natural law, needs to be accompanied by infused virtues that dispose the Christian believer towards supernatural acts that are rightly ordered to attaining those supernatural ends that by grace are truly perfective of him.[54] Indeed, for the Angelic Doctor, the acquired virtues, ordered as they are towards the temporal perfection of human society, from the supernatural horizon of the beatific vision, can now properly be regarded as only imperfect simulacrums of the infused virtues, ordered as they are towards the true and eternal perfection of the heavenly Kingdom.[55]

How does a human agent acquire the infused virtues? He does not. Recall that the principles of the acquired virtues and of the repetitive acts that engender them are the natural dispositions and the natural powers, both intellectual and appetitive, present in the human soul at its creation. These principles are ordered towards the human agent's natural end. They can engender human acts that are connatural to his created nature. As such, these principles are metaphysically incapable of causing supernatural virtues that would dispose the Christian believer towards supernatural acts that would allow him to attain his supernatural end. They simply do not have any potency for acts of this kind. Or to put it in more technical language, they are not proportionate to supernatural acts as certain causes are not proportionate to certain effects.[56] One could say that human nature

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[54] *De virt. in com.* a. 10.
[55] *De virt. in com.* a. 10 ad 1.
[56] Thus, for example, St. Thomas will note that the human will is unable by its nature to engender the supernatural good to which it is not inclined. Cf. *De virt. in com.* a.10.

is not proportionate to supernatural God-like acts in the same way that chimpanzee nature is not proportionate to the human-like acts of reasoning and of free choice. Accordingly, for St. Thomas, God has to infuse supernatural dispositions, supernatural powers, and supernatural virtues along with habitual grace in order to capacitate the Christian believer so that he can transcend his nature and act in a divine way, by participation.

As a supernatural parallel for the natural inclinations in the powers of the soul to its natural end, St. Thomas posits the existence of infused dispositions in the soul that incline its powers to their supernatural end who is God. These are the theological virtues of faith, hope, and charity.[57] As a supernatural parallel for the natural powers of the soul themselves, which by nature are capacitated to respond to reason, he posits the existence of infused dispositions in the soul that capacitate it so that it can respond to the Holy Spirit.[58] These are the gifts of the Holy Spirit.[59] Finally, as a supernatural parallel for the

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[57] For example, St. Thomas will explain that the theological virtue of faith disposes the intellect towards the knowledge of God who is first truth. Cf. *STh* II-II.1.1.

[58] Here my account of the gifts differs from the common interpretation given by the classical Thomists who propose that the infused virtues and the gifts ground two different modes of action. For a representative instance of this tradition, see Reginald Garrigou-Lagrange, O.P., *The Three Ages of the Interior Life*, Vol. 1 (St. Louis: B. Herder Books, 1947), pp. 66-82. However, as Angela McKay-Knobel has convincingly argued, this common interpretation does not do justice either to the texts of St. Thomas or to his conviction that the human agent is incapable of performing supernatural acts without the continuous aid of God's *auxilium*. For details, see her dissertation, "The Infused and Acquired Virtues in Aquinas' Moral Philosophy," Ph.D. Dissertation, University of Notre Dame, 2004. (ProQuest Document ID 305138977), pp. 41-50. Also see the discussion in Markus Christoph, S.J.M., "Justice as an Infused Virtue in the *Secunda Secundae* and Its Implications for Our Understanding of the Moral Life," S.T.D. Dissertation, University of Fribourg (Switzerland), 2011, pp. 44-49; and in James W. Stroud, "Thomas Aquinas' Exposition of the Gifts of the Holy Spirit: Developments in His Thought and Rival Interpretations," S.T.D. Dissertation, The Catholic University of America, 2012, pp. 69-111.

acquired virtues in the intellect and in the appetites, he posits the existence of infused virtues, also in the intellect and in the appetites. These are the infused intellectual virtue of faith and of prudence, and the infused appetitive virtues of hope, of charity, and of the other moral virtues.

With this framework in mind, one can describe the acquisition of an infused virtue, in this case of an infused moral virtue, as follows: At the moment of justification and through the merits of the Son, the human agent is given habitual grace, the theological virtues, the gifts of the Holy Spirit, and the infused moral virtues, with God as the efficient cause. These supernatural endowments transform and elevate the human agent's entire nature. Disposed to God by the theological virtues, capacitated by the gifts of understanding, of knowledge, and of wisdom, and guided by the Holy Spirit, his intellect is now able to comprehend the supernatural end to which he is now inclined and to understand certain goods unknowable by natural *synderesis*. In this way, he perceives and grasps the fundaments of the eternal law that establishes his friendship with God.[60] Through repetitive supernatural acts ordered towards these supernatural ends by infused prudence, capacitated by the supernatural gifts, and engendered by the supernatural virtues, he is then able to partake more fully in the infused virtues that he has received. Through his meritorious acts, he is able to cooperate with God in the working out of his salvation.

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[59] Thus, according to St. Thomas, the gift of understanding capacitates the intellect, which is inclined to the knowledge of God by the theological virtue of faith, to penetrate that knowledge of God easily and well under the guidance of the Holy Spirit. Cf. *STh* II-II.8.2.
[60] *STh* I-II.99.2.

This dynamic is a process of deification that allows us to grow in holiness so that we will become perfect, as God is perfect (cf. Matt 5:48). The *Catechism of the Catholic Church* formulates this revealed truth, citing sources from both the Eastern and Western theological traditions, as follows: "'For this is why the Word became man, and the Son of God became the Son of man: so that man, by entering into communion with the Word and thus receiving divine sonship, might become a son of God.' 'For the Son of God became man so that we might become God.' 'The only-begotten Son of God, wanting to make us sharers in his divinity, assumed our nature, so that he, made man, might make men gods'."[61] The infused virtues allow human beings to become like-God.

Note that in contrast to the acquired virtues that have human reason as their cause and rule, the infused virtues have divine reason, which is the eternal law[62], as their cause and their rule.[63] It is their cause because divine reason and not human reason causes the infused virtues to come to be in the human agent's powers. And it is their rule because once again, it is the human intellect, now transformed and elevated by the theological virtues and capacitated by the gifts of understanding, of knowledge, and of wisdom, that specifies and fixes the mean of the infused moral virtues according to the rule of the eternal law.[64] Or to put it another way, the divine reason is the rule for the infused virtues because when the human agent performs a supernatural act, it is God who moves the

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[61] *Catechism of the Catholic Church*, no. 460. Citing St. Irenaeus, *Adversus Haereses,* 3, 19, 1: PG 7/1, 939; St. Athanasius, *De Incarnatione Verbi Dei*, 54, 3: PG 25, 192B; and St. Thomas Aquinas, *Opusculum,* 57, 1-4.

[62] *STh* I-II.93.1.

[63] *STh* II-II.8.3 ad 3.

[64] *STh* I-II.63.4. However, it is significant that St. Thomas also teaches that the theological virtues do not have a mean in themselves because God is their object. However, they do have a mean if we look at them from the perspective of the human creature. See *STh* I-II.64.4.

intellect of the human agent through the gifts of the Holy Spirit so that it can grasp and act in accordance with the eternal law that reveals the proper supernatural ends that are perfective of the Christian believer.[65]

To summarize, this second schema of Thomistic virtues distinguishes the virtues according to their efficient cause. Here the infused virtues play an integral and necessary role within St. Thomas's understanding of the life of grace. Once one accepts that grace is akin to a form that radically alters and elevates the end of the Christian believer, then one needs to posit infused dispositions, infused powers, and infused virtues, analogously speaking, of course, to explain how the human agent in the state of grace is capable of performing supernatural acts that are God-like in nature. However, as we will see shortly, this schema also raises questions of how the acquired and the infused virtues relate to each other in the life of the saint and of the sinner.

Categorizing the Thomistic Virtues According to their Object and to their Final Cause

The third and fourth schemas have already been alluded to in the discussion of the second schema, just completed, that categorizes the virtues according to their efficient cause, and so I will only summarize them here. According to their object, the virtues can be distinguished into the theological virtues on the one hand, and the moral and intellectual virtues, on the other. As we saw above, the theological virtues of faith, hope, and charity, predispose the believer to God. They do this because their object is God Himself, immediately. They are a participation in His very essence. In contrast, the intellectual and the moral virtues, whether acquired or infused, do not concern God

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[65] *STh* I-II.63.2.

immediately but are ordered towards created things in relation to God as an end, discerned either by unaided reason or by reason illuminated by grace and the gifts of the Holy Spirit.

Finally, according to their final cause, the virtues can be distinguished into the natural and the supernatural virtues. As we saw above, the former kind include those virtues that direct the human agent to his natural end, which is his life in a political community, while the latter kind include those virtues that direct him to his supernatural end, which is his life in the Kingdom. Thus, the acquired intellectual and the acquired moral virtues are natural virtues, while the infused theological and the infused moral virtues are supernatural. As we will see towards the end of this chapter, I do not think that the parallel structure implied in the previous sentence is coincidental, because I think that there is an infused counterpart for the acquired intellectual virtues, which is the infused intellectual virtue we call the theological virtue of faith.

The Hylomorphic Relationship Between Individual Virtues

Turning from an Aristotelian consideration of the essence of virtue and then of the species of virtue, we now move to the relationship between individual virtues. Once again, St. Thomas deploys hylomorphic language here. For example, he claims that prudence is a form of the moral virtues.[66] More famously, St. Thomas teaches that charity is a form of all virtues, *caritas forma virtutum,* in Latin.[67] Correlatively, of course, if one virtue can be a form for another virtue, then a virtue can be matter for another virtue. But

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[66] *De veritate* 27.5 ad 5.
[67] *STh* II-II.23.8.

what exactly does this mean? What does it mean to say that one virtue is the form of another, or that one virtue is the matter of another?

Recall from Chapter One that that form not only determines matter but also specifies its end. Also recall from Chapter Two that when applied to the architecture of a complex human act, this principle reveals that the command determines the species of a commanded act such that an act of theft for the sake of adultery is formally an act of adultery and only materially an act of theft. Analogously, the moral object is the form of the will in the same way that the intelligible is the form of the intellect. The governing rule in this analysis is that the formal principle specifies the end of the material principle.

Beginning with the acquired virtue of prudence, St. Thomas proposed early in his career that prudence is the form of the acquired moral virtues: "Prudence is the form of the other moral virtues in so far as the imprint of prudence on the inferior powers gives to the habits the nature of virtue."[68] In the same text, he explains that this obtains because prudence directs the moral virtues towards the ends specified by the order of reason:

> Except in so far as it participates in the perfection of a higher power, an
> inferior power does not have the perfection of a virtue just as a habit in the
> irascible power does not have the nature of a virtue…except in so far as it
> receives understanding and discretion from reason, which is perfected by

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[68] *In Sent.* III.27.2.4 qc3 ad 1: "Prudentia est forma aliarum virtutum moralium, inquantum sigillatio quedam prudentiae in inferioribus viribus dat habitibus qui ibi sunt, rationem virtutis."

prudence. In this respect, prudence places a mode and a form in all the other moral virtues.[69]

In his more mature work, St. Thomas will explain again: "Prudence directs the moral virtues not only in the choice of those things directed towards the end, but also in appointing the end. For the end of each moral virtue is to attain the mean in the proper matter whose mean is determine according to the right rule of prudence."[70] Prudence can be said to be a form of the moral virtues because it directs them according to the order of reason. It does this by inquiring, by judging, and by commanding acts that cause a *habitus* to form within the an agent cause's appetites so that they are properly ordered towards their connatural ends, which are the ends that are grasped by *synderesis*.

Turning now to the infused virtue of charity, the analysis is the same. St. Thomas explains that charity is the form of the virtues because it directs the acts of all the virtues towards their ultimate end in the same way that the form of a human act determines its end[71]:

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[69] *In Sent.* III.27.2.4 qc3: "Inferior enim potentia non habet perfectionem virtutis nisi secundum quod participat perfectionem potentiae superioris; sicut habitus qui est in irascibili, non habet rationem virtutis…nisi inquantum intellectum et discretionem recipit a ratione, quam perficit prudentia; et secundum hoc prudentia ponit modum et formam in omnibus aliis virtutibus moralibus."

[70] *STh* I-II.66.3 ad 3: "Prudentia non solum dirigit virtutes morales in eligendo ea quae sunt ad finem, sed etiam in praestituendo finem. Est autem finis uniuscuiusque virtutis moralis attingere medium in propria materia, quod quidem medium determinatur secundum rectam rationem prudentiae."

[71] St. Thomas's understanding of how charity is the form of the virtues is one of those areas of his thought that evolved during his intellectual lifetime. In his earlier writings, charity is a quasi-formal cause of the virtues while in his mature work, as we will see below, charity is the form of the virtues only in that it is their efficient cause. For discussion, see Michael Sherwin, O.P., *By Knowledge and By Love* (Washington, D.C.: The Catholic University of America Press, 2005), pp. 192-202.

In morals the form of an act depends primarily from the end…Now it is

evident…that it is charity that directs the acts of all other virtues to their

ultimate end. And as such, it also gives the form to all other acts of virtue,

and in this way it is called the form of the virtues.[72]

As a specific example, St. Thomas will teach:

It should be noted in the acts of the soul that an act that is essential to

some power or habit receives a form or a species from a superior power or

habit, as an inferior power is ordained by a superior power, for if one were

to perform an act of fortitude for love of God, that act is materially an act

of fortitude but is formally an act of charity.[73]

The act of a more superior virtue is related to the act of the inferior virtue as form is

related to matter.

In imprinting a form on the acts of the virtues, charity acts as an efficient cause:

"Charity is called the form of the other virtues not as being their exemplar nor their

essential form, but more as their efficient cause, in so far as it is the form of all."[74] It is

important to note, however, that this directing function of charity occurs in concert with

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[72] *STh* II-II.23.8: "In moralibus forma actus attenditur principaliter ex parte finis…
Manifestum est autem…quod per caritatem ordinantur actus omnium aliarum virtutum
ad ultimum finem. Et secundum hoc ipsa dat formam actibus omnium aliarum virtutum.
Et pro tanto dicitur esse forma virtutum."

[73] *STh* I-II.13.1: "Est autem considerandum in actibus animae, quod actus qui est
essentialiter unius potentiae vel habitus, recipit formam et speciem a superiori potentia
vel habitu, secundum quod ordinatur inferius a superiori, si enim aliquis actum
fortitudinis exerceat propter Dei amorem, actus quidem ille materialiter est fortitudinis,
formaliter vero caritatis."

[74] *STh* II-II.23.8 ad 1: "Caritas dicitur esse forma aliarum virtutum non quidem
exemplariter aut essentialiter, sed magis effective, inquantum scilicet omnibus formam
imponit."

infused prudence and with infused grace. They work together to bring both the intellect and the will to bear on the acts of the infused moral virtues so that they are ordered towards the attainment of the ultimate end that is the eternal glory of the beatific vision:

> An act of virtue is given form in three ways. First of all, this is done in so far as the due conditions for the substance of the act are placed, setting limits to it and establishing it in the mean of virtue. The act of virtue has this from prudence for the mean of virtue is determined by right reason…And in this way, prudence is called the form of all the moral virtues. But the act of virtue is constituted in the mean as it is ordered to the ultimate end. This order is conferred upon the act of virtue by the command of charity. Thus charity is said to be the form of all the other virtues. Furthermore, however, grace contributes efficacy for meriting for no one would be counted worthy of eternal glory unless divine acceptance were presupposed. In this sense grace is said to be the form both of charity and of the other virtues.[75]

In the end, infused prudence determines the proximate end, i.e., the means of attaining the ultimate end, of the act of the moral virtues, infused charity determines its ultimate

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[75] *De veritate* 27.5 ad 5: "Informatur autem actus virtutis tripliciter. Uno modo in quantum circa substantiam actus apponuntur debitae conditiones, per quarum limitationem in medio virtutis constituitur. Et hoc habet actus virtutis a prudentia; nam medium virtutis accipitur secundum rationem rectam…Et sic prudentia dicitur forma omnium virtutum moralium. Actus autem virtutis sic constitutus in medio, est quasi materialis respectu ordinis in finem ultimum, qui quidem ordo apponitur actui virtutis ex imperio caritatis; et sic caritas dicitur esse forma omnium aliarum virtutum. Ulterius vero efficaciam merendi adhibet gratia: nullus enim operum nostrorum valor reputatur dignus aeternae gloriae, nisi praesupposita acceptatione divina; et sic gratia dicitur esse forma et caritatis et aliarum virtutum."

end, and infused grace actualizes its performance so that the act can merit achieving that ultimate end, which is eternal life. These two examples reveal that for St. Thomas, two virtues can relate to each other as matter and form when the end of one virtue, acting as matter analogously understood, can be directed to the end of a second virtue, acting as form analogously understood. Form is all about that which determines the end of another.

The Hylomorphic Relationship Between Categories of Virtues

St. Thomas never explicitly addressed the issue of how the acquired and the infused virtues are related to, and work with, each other in any of his writings, though it is clear that he thought that an individual may have both kinds of virtue at the same time, and that they cooperate in some way.[76] Therefore, it is not surprising that over the past

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[76] For instance, in describing the prudence that is in the Christian believer, the Angelic Doctor writes: "Diligence is twofold: one is sufficient with regards to those things necessary for salvation and such diligence is given to all those who have been given grace, those whom his anointing teaches all things (1 Jn. 2:27). There is another diligence that is more than sufficient whereby one is able to make provision for himself and for others, not only in those things necessary for salvation but also in those things necessary for human life. Such diligence is not in all who have grace." (*STh* II-II.47.14 ad 1): "Duplex est industria. Una quidem quae est sufficiens ad ea quae sunt de necessitate salutis. Et talis industria datur omnibus habentibus gratiam, quos unctio docet de omnibus, ut dicitur I Ioan. II. Est autem alia industria plenior, per quam aliquis sibi et aliis potest providere, non solum de his quae sunt necessaria ad salutem sed etiam de quibuscumque pertinentibus ad humanam vitam. Et talis industria non est in omnibus habentibus gratiam."

This text and there are others demonstrate that St. Thomas had no conceptual problem with positing the co-existence of the acquired and the infused virtues in the believer. For a recent study that suggests otherwise, see William C. Mattison III, "Can Christians Possess the Acquired Cardinal Virtues?" *Theological Studies* 72 (2011): 558-585.

As for the cooperation between the two categories of virtues, St. Thomas writes: "The other virtues are infused along with charity. Hence, the act of the acquired virtue

eight hundred years, his intellectual heirs have provided many, and often-contradictory explanations, for how these two kinds of accidental dispositions in the soul relate to each other, a *questione disputata* that Brian Shanley, O.P., calls "perennially thorny."[77] Two interrelated issues are contested. The first deals with how these two categories of virtues, especially the acquired and infused moral virtues, coexist within the Christian believer living in grace – I will call this the metaphysical issue – while the second considers how they determine the moral character and actions, whether natural or supernatural, of the believer – I will call this the cooperation issue.

Though a complete and comprehensive treatment of this disputed question lies beyond the scope of this dissertation,[78] I examine two hylomorphic solutions that have been proposed more recently by Fr. George Klubertanz, S.J., and Sr. Renée Mirkes, O.S.F., to resolve this *questio*, to determine if they are successful. I chose these accounts because each attempts to answer the metaphysical issue by referring to the analogy of matter and form. As we have already seen several times in this dissertation, St. Thomas frequently avers to hylomorphism when he wants to describe the relationship between two related

cannot be meritorious if not for the mediation of the infused virtue." (*De virt. in com.* q 10 ad 4): "Cum caritate autem simul infunduntur aliae virtutes; unde actus virtutis acquisitae non potest esse meritorius nisi mediante virtute infusa."

[77] Shanley, "Aquinas on Pagan Virtue," p. 555. For a historical summary of the theological positions put forward to respond to the metaphysical and facility questions, see Robert Coerver, "The Quality of Facility in the Moral Virtues," S.T.D. Dissertation, The Catholic University of America, 1946; John F. Harvey, "The Nature of the Infused Moral Virtues," in *Proceedings of the Tenth Annual Convention of the Catholic Theological Society of America, June 27-29, 1955* (New York: Catholic Theological Society of America, 1955), pp. 172-221; and Renée Mirkes, "Moral Virtue and Facility," *The Thomist* 61 (1997): 189-218.

[78] For incisive analysis, extensive discussion, and references to the vast secondary literature, see Markus Christoph, S.J.M. "Justice as an Infused Virtue in the *Secunda Secundae* and Its Implications for Our Understanding of the Moral Life," pp. 151-228.

and complementary realities. Therefore, it is not unreasonable to think that he would have used the matter-form analogy here as well, had he chosen to address this question more directly in his work.

Moreover, as we will see shortly, each of the hylomorphic solutions considered here attempts to answer the cooperation issue with an account representative of two of the three possible categories of theories of cooperation. (As I explain below, the third category of theories of cooperation is not amenable to matter-form analysis by its very nature.) As such, each of these two hylomorphic accounts from Klubertanz and Mirkes will help us better understand the broader landscape of all the possible solutions to the question of how the acquired and the infused virtues could possibly interact and cooperate within a Thomistic schema.

Theories of Cooperation Between the Acquired and the Infused Virtues

In his dissertation, Markus Christoph, S.J.M., makes a convincing case that *the* critical and distinctive feature of a theory of cooperation between the acquired and the infused virtues is its account of how the infused virtues either influence or do not influence the activity and the development of their acquired counterparts.[79] He has shown that a consensus has emerged in the tradition that the acquired virtues more or less influence the activity and the development of their infused counterparts by providing or by impeding an extrinsic facility for the practice of infused virtues and the performance of supernatural acts. What is not clear is how this is accomplished, and if the reverse dynamic exists in the believer as well. Thus, in Christoph's view, all the proposed theories

[79] Ibid., pp. 153-162.

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of cooperation within the Thomistic tradition can be classified, more or less, into three fundamental categories, depending upon how they understand, what I will call, this "inter-vertual" dynamic, from the Middle English term, *vertu*, for virtue, between an infused virtue and its acquired counterpart.

First, the non-cooperative theories – Christoph calls them exclusive-order theories, but I find his terminology less than helpful – posit that there is no interaction and thus no cooperation between the acquired and the infused virtues, because these categories of virtues belong to different orders of reality.[80] According to this view, the Christian believer in the state of grace is able to perform purely supernatural acts from his infused virtues and purely natural acts from his acquired virtues. Neither kind of virtue and neither kind of acts influences the activity or development of the other kind of virtue or kind of acts.

Next, the accidentally-cooperative theories – Christoph calls them accidental relation theories – posit that the infused virtues may influence the activity and development of their acquired counterparts, depending on the particular circumstances. For instance, some proponents of these theories suggest that supernatural acts can lead to the acquisition of natural virtue if the agent intends both the supernatural and natural perfections when he acts. Thus, a monk who uses the supernatural virtue of temperance to fast not only in penance for his sins but also for the prevention of diabetes would acquire the natural virtue of temperance.

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[80] This paragraph is based upon the analysis of Christoph, "Justice as an Infused Virtue in the *Secunda Secundae* and Its Implications for Our Understanding of the Moral Life," pp. 162-204.

Finally, the essentially-cooperative theories – Christoph calls them inclusive-order theories – posit that the infused virtues necessarily influence and impact the activity of their acquired counterparts. Proponents of these theories think that every act of an infused virtue contains the perfection of the corresponding natural act. Or to put it another way, they believe that a supernatural act has to align in a certain way to the measure of reason, regardless of the presence or absence of the corresponding acquired virtue.

How do we determine which theory among these many accounts is the true one? One criterion is to determine which is the most faithful to the theological insights of St. Thomas. This is the criterion most often used by Thomists in their analysis, but there are few pertinent and determinative texts available here.[81] Thus, a complementary approach, which I will emphasize here, is to test each theory for its ability to explain, or to fail to explain, the actual everyday experience of Christian believers who are struggling to work out their salvation in fear and trembling (cf. Phil 2:12). The assumption is that the theory with the most explanatory power is often the one closest to the truth of the matter.[82] The four case studies I will use to evaluate the theories under investigation, verifiable in the confessional and in everyday life, will be the cases of the lax seminarian, the diabetic Trappist monk, the converted Zumba instructor, and the revert couch potato. The first is

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[81] Christoph has identified just three indirect texts from the corpus of St. Thomas that deal with how the acts of the infused virtues impact the development of the acquired virtues: *De veritate* 17.1 ad sed contra 4; *STh* I-II.51.4 ad 3; and *De virt. in com.* q 10 ad 19. As he convincingly shows, however, they are underdetermined and cannot be used to resolve the question definitively. See Christoph, "Justice as an Infused Virtue in the *Secunda Secundae* and Its Implications for Our Understanding of the Moral Life," pp. 162-164.

[82] For a classic exposition and defense of this claim in the philosophy of science, see Peter Lipton, *Inference to the Best Explanation*, 2nd ed. (New York: Routledge, 2004).

a classic example in the secondary literature[83] while the latter three are based on the experience of individuals I have met in my priestly apostolate with alterations in the narrative to maintain their anonymity. These cases involve the acquired virtue of temperance and its infused counterpart. The former is a virtue ordered towards the health of the body as determined by reason, while the latter is ordered towards the chastisement and subjection of the body for the sake of the Kingdom.[84]

First, the lax seminarian is the case of the seminarian who regularly receives the sacraments and practices acts of infused virtue during his years of formation, but who does not undertake acts to strengthen his acquired virtues. More concretely, he fasts and abstains on Fridays and during Lent and Advent, but does not regulate his diet otherwise. His lack of zeal manifests itself in disordered attachments to creaturely goods and in repetitive acts of venial sin including gluttonous acts in front of the cable television. Here, the lax seminarian's use of the infused virtues to perform supernatural acts does not redound to the acquisition of natural virtues. Not surprisingly, the lax seminarian becomes a lax priest.

Next, the pre-diabetic Trappist monk is the case of the monk who has spent a lifetime abstaining and fasting as part of his monastic observances. Late in life, an annual health examination reveals that he is genetically predisposed to diabetes so he is asked to remove all salt from his diet. He discovers that his decades-long practice of the supernatural virtue of temperance has made it easy for him to embrace a cholesterol-free

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[83] For example, see Harvey, "The Nature of the Infused Moral Virtues," p. 196.
[84] Cf. *STh* I-II.63.4. For a discussion of the importance of temperance in the life of the Christian, see Stephen Loughlin, "Thomas Aquinas and the Importance of Fasting to the Christian Life," *Proecclesia* 17 (2008): 343-361.

and salt-free diet for his own benefit, even in a state of mortal sin. Here, the pre-diabetic Trappist monk's use of the infused virtues to perform supernatural acts redounded to the acquisition of natural virtues in the absence of repetitive natural acts ordered towards his own good.

Third, there is the case of the converted Zumba instructor who is baptized in college after being raised in a secular family. After her conversion, she continues living a healthy lifestyle involving regular dieting. Later that year, she discovers the Church's practice of fasting for the Kingdom while on a sophomore retreat and begins fasting regularly on Wednesdays and Fridays. Not surprisingly, she discovers that her healthy heating habits facilitate her fasting schedule during the week. Here, the converted Zumba instructor's use of the natural virtues – in this case the acquired virtue of temperance – to perform natural acts of dieting predates her use of its infused counterpart, because of her ignorance, even in the state of grace.

Finally, the revert couch potato is the case of a man who experiences a mid-life crisis that returns him not only to the Church of his childhood but also to the gym of his college years. He begins to diet to lose his beer belly and to fast for his salvation. He Surprisingly, he discovers that fasting helps him to diet and vice versa. Here, the revert couch potato's use of the infused virtues to perform supernatural acts redounded to the acquisition of natural virtues.

Evaluating a Hylomorphic/Non-cooperative Theory of Cooperation

Given the basic premise of all non-cooperative theories that there is no interaction and thus no cooperation between the acquired and the infused virtues, it should not be

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surprising that no one has proposed a hylomorphic variant for this category of theories. No such theory is proposable. As we discussed in Chapter One, the guiding principle for St. Thomas's analogical use of hylomorphic terminology is succinctly summarized in his observation cited earlier that "whenever two things concur to make one, one of them is formal in regard to the other."[85] Thus, if two things can never concur – as the non-cooperative theorists propose for the inter-vertual dynamic between the acquired virtues and their infused counterparts – then matter-form language cannot be used, even analogically, to describe the relationship between them.

Nonetheless, I would like to raise an objection to non-cooperative theories of cooperation taken as a whole. In my view, the most significant problem with these accounts is that they fail to explain the case of the pre-diabetic Trappist monk and other cases like it. While in the state of grace, the monk performed supernatural acts of temperance for love of God and His Most Holy Mother. These acts of temperance were not done because the man was concerned about his health. They were done because he loved the Mother of God. As such, I would propose that the diabetic monk did not perform natural acts of temperance in religious life. He certainly did not intend to. In fact, he was aware that his fasting and abstinence could later impact his health detrimentally. And yet, this Christian believer discovered that he had acquired a natural virtue from what appeared to be the repetitive acts of infused virtue. If the non-cooperative theories of cooperation between the acquired and the infused virtues were

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[85] *STh* I-II.13.1: "Quandocumque autem duo concurrunt ad aliquid unum constituendum, unum eorum est ut formale respectu alterius."

true, then this would not be possible: Supernatural acts should not be able to influence the growth of natural virtue. And yet the empirical data suggests that they do.

Evaluating a Hylomorphic/Accidentally-Cooperative Theory of Cooperation

Turning to a hylomorphic/accidentally-cooperative theory of inter-vertual cooperation, Fr. George Klubertanz, S.J., has proposed that a matter-form analogy best explains the relationship between the acquired and the infused virtues: "Here in brief is this theory. The habits which are in the same power or in distinct powers may be one to the other like matter and form."[86] In his view, the two categories of virtue have a relationship where the acquired virtue is determinable and the infused virtue is determining. They come together as matter and form as a single principle of operation for all the agent's acts in the life of grace. How they interact and cooperate with each other depends on the explicit motives chosen by the agent when he acts.

Using the acquired and infused virtues of prudence as an example, Klubertanz explains that when the agent in the state of grace acts prudentially, his act is a supernatural act of prudence in conformity with the divine law that emerges from both the acquired and the infused virtue of prudence relating to each other as principles of matter and form.[87] However, for Klubertanz, this supernatural act must also be an act in accordance with the law of reason because the principles of the divine law includes the principles of the natural law. Thus, he concludes, "far from being opposed or from being

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[86]"Voici en bref ce qu'est cette théorie. Les habitus, qu'ils soient dans une même puissance ou dans plusieurs puissances distinctes, peuvent être l'un pour l'autre comme matière et forme." George Klubertanz, S.J., "Une theorie sur les vertus morales 'naturelles' et 'surnaturelles'," *Revue Thomiste* 59 (1959): 565-575, p. 570.

[87] Ibid., 571.

incompatible, these principles [of acquired and infused virtue in the state of grace] are mutually complementary."[88]

How does Klubertanz explain the cooperation of the two kinds of virtue? By definition, natural acts cannot give rise to supernatural virtue. They belong to different orders of reality where the supernatural far exceeds the natural not only in degree but also in kind. But can supernatural acts give rise to natural virtue? For Klubertanz, it depends. If a person in the state of grace makes a prudential judgment based upon the divine law, solely upon the authority of God, then his act of prudence, because it only contains the supernatural perfection of the virtue, does not redound to the growth of natural virtue.[89] However, if the same agent cause makes a prudential judgment based not only upon the divine law but also upon right reason, then this supernatural act contains formally the perfection of the supernatural virtue and materially the perfection of its natural counterpart. This supernatural act would then be able to cause or to enhance the acquired virtue of prudence. The reverse is also true. If a person in the state of grace makes a prudential judgment based solely on right reason without considering the divine law, then his act would remain a natural act that would lead to an increase of acquired virtue without involving either supernatural virtues or supernatural acts.[90]

To evaluate Klubertanz's hylomorphic/accidentally-cooperative theory of cooperation, I would like to explore its ability to explain the experiential data encapsulated in the four case studies described above. At the outset, note that his theory is

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[88] "[B]ien loin de s'opposer, ou de s'exclure comme incompatibles, ces principes sont mutuellement complémentaires." Klubertanz, "Une theorie," p. 571.
[89] Klubertanz, "Une theorie," p. 572.
[90] Ibid.

accidentally-cooperative in nature because of Klubertanz's conviction that an agent's natural and supernatural acts can be distinguished from each other or can be unified as one act as determinable to determining depending upon the agent's motives. As such, they are only accidentally related to each other when they do cooperate in the life of grace.

First, there is the case of the lax seminarian who regularly receives the sacraments and practices acts of infused virtue during his years of formation, but who does not undertake acts to strengthen his acquired virtues. He fasts, but he does not diet. He finds dieting hard, even in the state of mortal sin. Here, the Christian believer's supernatural acts are not accompanied by corresponding natural acts and thus they do not lead to natural virtue. Can Klubertanz's theory explain this scenario? Yes, it can. His theory would say that when the seminarian chose to fast, he did so only with the divine law in mind. He did not consider the law of reason when he acted. As such, his supernatural actions did not redound to the growth of natural virtue.

Next, there is the case of the pre-diabetic Trappist monks who discovers that his lifetime of fasting and abstinence has facilitated his living out of a cholesterol-free and salt-free diet, even in the state of mortal sin. Here, the monk's use of the infused virtues to perform supernatural acts of temperance has facilitated the acquisition of its natural counterpart. Here, Klubertanz's theory is weak. If the monk did not consider the rule of reason in his monastic observance, then we would not have expected him to develop the corresponding acquired virtue of temperance. This scenario would be comparable to the lax seminarian case. And yet, it appears that in this particular life, the exercise of the

supernatural virtues in the life-long practice of supernatural acts does lead to the growth of their acquired counterparts, probably by altering the monk's bodily dispositions.

Third, there is the case of the converted Zumba instructor who continues to maintain a healthy diet after her baptism months before she discovers the Church's practice of fasting for the Kingdom. Here, the trainer's use of her natural virtues appears to predate her use of her supernatural virtues. Though her natural acts of temperance do facilitate her supernatural acts of fasting, what is important here is that it appears that she is able to perform natural acts of virtue without simultaneously performing supernatural acts from the infused counterpart. Once again, Klubertanz's theory can explain this Christian's experience. Here the Zumba instructor, even in the state of grace, chose to diet based solely on right reason without considering the divine law. Therefore, her act would remain a natural act that would lead to an increase of acquired virtue without involving either supernatural virtues or supernatural acts

Finally, there is the case of the revert couch potato who experiences a mid-life crisis that returns him not only to the Church of his childhood but also to the gym of his college years. He begins to diet to lose his beer belly and to fast for his salvation. Surprisingly, he discovers that fasting helps him to diet and vice versa. Here, the revert couch potato's use of the infused virtues to perform supernatural acts redounded to the acquisition of natural virtues. Again, Klubertanz's theory provides an excellent account of this Christian's experience. In exercising the supernatural virtue of temperance, the revert couch potato acquires the corresponding natural virtue because his supernatural act was undertaken with both the divine law and the natural law in mind. As such his act contains the perfections of both the supernatural virtue and its acquired counterpart.

In summary, Klubertanz's hylomorphic/accidentally-cooperative theory of cooperation appears to explain most of the experiential data taken from Christians living the life of grace. Its one weakness is that it appears to fail in cases where Christians like the pre-diabetic monk who choose to perform supernatural acts alone, appear to acquire the corresponding natural virtue. We will return to this data point after we consider an alternative hylomorphic account to explain the cooperation of the acquired and the infused virtues.

Evaluating a Hylomorphic/Essentially-Cooperative Theory of Cooperation

Moving to the final category of theories of cooperation, the essentially-cooperative theories, Sr. Renée Mirkes, O.S.F., has proposed that the two categories of virtue, acquired and infused, come together as matter and form to become a perfect whole.[91] As we will see in greater detail below, in contrast to Klubertanz's proposal discussed above, her hylomorphic account is representative of those essentially-cooperative theories of virtue that posit that the infused virtues necessarily influence and impact the activity of their acquired counterparts.

Metaphysically, for Mirkes, St. Thomas taught that a Christian in the state of grace has supernatural virtues, perfect moral virtues that are composed of an acquired virtue and an infused virtue understood as principles of matter and of form. She writes: "[I]n the

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[91] Renée Mirkes, O.S.F. "Aquinas's Doctrine of Moral Virtue and its Significance for Theories of Facility," *The Thomist* 61 (1997): 189-218. Also see her, "Aquinas on the Unity of Perfect Moral Virtue," *American Catholic Philosophical Quarterly* 71 (1998): 589-605. Both of these published essays were based on her dissertation, "Aquinas on the Unity of Perfect Moral Virtue and its Significance for the Nature-Grace Question," Ph.D. Dissertation, Marquette University, 1995.

Christian who also possesses the acquired moral virtues, each acquired virtue and its infused counterpart are the material and formal principles, respectively, of the perfect realization of that particular moral virtue and constitute a unified virtue that is supernaturally transformed." [92] Or again: "Moral virtue in the Christian, though composed of acquired and infused moral virtue, is an indivisible but composite virtue that is formally an infused moral virtue and materially an acquired moral virtue."[93] Or again: "In the Christian moral life, a perfect moral act directed to a single material object but performed from two ordered motives, natural and supernatural, is able to realized a created good that is a means to attaining the absolutely ultimate end."[94] The acquired and the infused virtues are the matter and the form of the perfect moral virtues.

To justify her reconstruction of St Thomas's theory of virtue, Mirkes makes an argument of three steps. First, from the Angelic Doctor's teaching that a *habitus* is an active principle that not only orients a power of the soul to perform a certain operation with ease, promptness, and enjoyment, but is also capable of further perfection from a superior *habitus*[95], Mirkes – correctly, in my view – establishes a Thomistic hierarchy of virtues where the acquired intellectual virtues are inferior to the acquired moral virtues, and both kinds are inferior to their infused counterparts. Next, from St. Thomas's teaching that the inferior can be perfected by the superior, Mirkes proposes, "[j]ust as natural dispositions are the perfectible of the acquired intellectual and moral virtues, so it is reasonable to argue that acquired moral virtue is the perfectible or material principle of

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[92] Mirkes, "Aquinas's Doctrine," p. 191.
[93] Ibid., p. 199.
[94] Ibid., p. 191.
[95] Ibid., p. 192.

infused virtue, which is superior to it."[96] Finally, from her reading of St. Thomas's teaching that perfect moral virtue is materially an acquired moral virtue and formally a virtue of prudence, she concludes that "through the unity of charity, [St. Thomas] defines absolutely perfect moral virtue as a virtue that is formally an infused virtue and materially an acquired virtue."[97] For Mirkes, what is presupposed here "is the act-potency relationship that is constitutive of matter and form."[98] Thus, she concludes that "each acquired moral virtue is related to its infused counterpart as a determinable or perfectible principle, that is, that which is in potency to the actualization by its infused analogate."[99] As precedent for her hylomorphic account of perfect moral virtue, Mirkes points to hylomorphic examples of the structure of the human act, the structure of the human person, the structure of Christ, and the structure of the divine law.[100]

Cooperatively, for Mirkes, St. Thomas taught that the Christian in the state of grace is only capable of acts that are simultaneously natural and supernatural in character because of the way the infused and acquired virtues cooperate with each other to cause perfect moral virtue. She writes:

A moral virtue, in its absolutely perfect state, is formally speaking supernatural or an infused virtue and materially speaking natural or an acquired moral virtue…The formal cause is the supernatural perfection that determines the composite virtue to be the kind that it is; the material cause is the natural perfection that is in potency to the perfecting formal

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[96] Ibid., p. 195.
[97] Ibid., p. 196.
[98] Mirkes, "Aquinas on the Unity," p. 591.
[99] Ibid.
[100] Ibid., pp. 600-601.

cause and is able to be determined by it, while at the same time exercising

its own reciprocal causality.[101]

Or again: "[A]n infused moral virtue having received its perfect form from charity, is also able to effect, produce, and create its own form or perfection in its acquired counterpart, enabling the acquired virtue to function just like the infused."[102]

Given all this, for Mirkes, the acquired virtues confer or impede an extrinsic facility to the practice of their infused counterparts in the same way that matter is predisposed to greater or lesser degrees to form: "The reason that the person still suffers a lack of ease in the performance of infused virtues after their restoral following sacramental penance, for example, is that the infused virtue is still linked with the material component of an acquired vice or a vicious disposition."[103] In a complementary manner, the infused virtues are able to direct their acquired counterparts, as form directs matter in the substance, so that they are both ordered towards the same end, in this case the supernatural end specified by the formal principle. Note that the infused virtue adds a further determination to the acquired virtue that does not supplant the latter's essential nature. Grace perfects nature: "[G]race could never detract from nature. Rather, witnessing to the dignity of the human person as an *imago Dei* who is open to and fit for grace, the supernatural life of God confers on human nature the very completion toward which it tends."[104]

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[101] Mirkes, "Aquinas's Doctrine," pp. 204-205.
[102] Ibid., pp. 196-197.
[103] Ibid., p. 205.
[104] Mirkes, "Aquinas on the Unity," p. 605.

Finally, in Mirkes's view, the human faculties in the state of grace are specified so that they are ordered towards both their natural and their supernatural perfections, where the former is ordered towards the latter. Two things follow from this. First, in Mirkes's view, the Christian believer is unable to perform either a purely natural or a purely supernatural act of virtue. An act of supernatural virtue is always both natural and supernatural: "[S]ince intention responds to both a final and a proximate end, it is possible to do one and the same act for both a natural and supernatural end. As a result, an act of temperance following from a perfect virtue of temperance is a single act performed from two ordered motives and for two ordered ends."[105] Or again, "The justified person who possesses the acquired virtues and who performs a supernatural act of prudence, for example, also performs an act of acquired prudence."[106] This claim of the unity of the virtues has to be understood with Mirkes conviction that "[b]ecause of the ordered relationship of imperfect to perfect principles, Aquinas demonstrates that the motive and end of acquired moral virtue is included within, or is the material component, of, the motive and end of infused moral virtue."[107] A correlate of this proposal that the virtues are unified is that, for Mirkes, the Christian believer is unable to perform purely natural acts of virtue. She writes: "There is no evidence in Aquinas, then, to support the claim that, in the life of the Christian who also possesses the acquired virtues, there is the possibility of performing purely natural acts of acquired virtue. One could argue that

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[105] Ibid., p. 198.
[106] Mirkes, "Aquinas on the Unity," Ph.D Dissertation, p. 218.
[107] Mirkes, "Aquinas's Doctrine," p. 197.

there might be Christian acts of moral virtue that are performed predominantly from natural motives, but…even these acts would be formally supernatural."[108]

Next, in Mirkes's view, supernatural acts necessarily redound to the spiritual power to generate acquired virtue: "If the act of prudential judgment of the mature baptized person includes a natural act of acquired prudence, the repetition of this will eventually account for the acquisition of the human virtue of prudence."[109] For Mirkes, this dynamic occurs when the acting person chooses to act with his natural good in mind:

> To acquire a natural virtue of prudence…the person needs repeatedly to perform acts that contain the perfection of right reason until the accumulated effect of these acts brings the power from a state of potency to actuality, and the person is able consistently and with ease to judge rightly about what is to be done in the here and now. It is the perfection or the goodness of the repeated act in which the agent wills the good as a good for himself that is responsible for the formation of the virtue.[110]

Supernatural virtues give rise to supernatural acts, which give rise to natural virtues when the agent acts supernaturally with his natural end in mind.

Like we did with Klubertanz's account, I would like to evaluate Mirkes's theory by investigating its ability to explain the experiential data encapsulated in the four case studies described earlier. In contrast to his theory, hers is essentially-cooperative because of her belief that an act of perfect moral virtue is always both natural and supernatural in character. One cannot separate the natural act of acquired virtue and the supernatural act

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[108] Ibid., p. 205.
[109] Mirkes, "Aquinas on the Unity," Ph.D Dissertation, p. 217.
[110] Mirkes, "Aquinas's Doctrine," p. 214.

of infused virtue within the act of perfect moral virtue, because one cannot separate matter and form without destroying the substance. As such, the two kinds of virtue necessarily and essentially cooperate with each other in the life of grace.

First, there is the case of the lax seminarian. Can Mirkes's theory explain this scenario? It appears not. As an essentially-cooperative theory, her proposal conjectures that supernatural acts necessarily redound to the spiritual power to give rise to acquired virtue. The lax seminarian does not develop acquired virtue despite his frequent and repetitive acts of infused virtue. Given everything that Mirkes has said about the unity between a supernatural and a natural virtue within a perfect moral virtue, it would be hard for her to explain the lax seminarian's experience in the life of grace.

Next, there is the case of the pre-diabetic Trappist monks. Here, Mirkes's theory provides an excellent account of this Christian's experience. In practicing the supernatural virtue of temperance, the pre-diabetic monk acquired the corresponding natural virtue because each supernatural act is both natural and supernatural in character. This inter-vertual dynamic is an essential one that does not require the acting person's intending his own natural good.

Third, there is the case of the converted Zumba instructor. Once again, Mirkes's theory cannot explain this Christian's experience. Recall that for Mirkes, the Christian believer is unable to perform purely natural acts of virtue. As we noted above, she claims: "One could argue that there might be Christian acts of moral virtue that are performed predominantly from natural motives, but…even these acts would be formally

supernatural."[111] Thus, in her view, the converted Zumba instructor who was dieting was actually fasting even before she knew that she could fast. To put it another way, for Mirkes, once she was baptized, the Zumba instructor was actually fasting for the sake of the Kingdom when she was dieting, even without her explicitly intending to fast. In my view, this is erroneous because it would suggest that there is no real difference between the Zumba instructor's acts when she was dieting and when she was explicitly fasting. But there was a difference! The fasting helped the Zumba instructor to pray in a way that the dieting did not.

Finally, there is the case of the revert couch potato. Again, Mirkes's theory provides an excellent account of this Christian's experience. In practicing the supernatural virtue of temperance, the revert couch potato acquires the corresponding natural virtue because each supernatural act is both natural and supernatural in character, especially when the human agent intends both his natural and his supernatural end simultaneously.

In sum, Mirkes's theory – and I would add, all essentially-cooperative theories of virtue by their very nature have the same problem – is unable to explain all the experiential evidence of the Christian life. Its basic flaw is that it is unable to account for those experiences where Christians in the state of grace are able to exercise acts of natural and supernatural virtue independently of each other. More concretely, it is unable to account for how a Christian can fast without concern for his health, how a Christian can diet without concern for his salvation, or how a Christian can simultaneously diet for

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[111] Mirkes, "Aquinas's Doctrine," p. 205.

health and fast for the Kingdom depending upon how she chooses to understand what she is doing.

A Summary Evaluation of Hylomorphic Theories of Cooperation

At the top of the chapter, I pointed out that one challenge facing Catholic moral theologians today is to properly explain those transformations from vice to virtue in the Christian who begins to live the life of grace. For theologians working within the Thomistic tradition, this will necessarily involve a discussion of how the acquired and the infused virtues cooperate, if they even do so, with each other in the acts of the believer.

We have now explored the three broad categories of theories of cooperation between the acquired and the infused virtues concentration of their hylomorphic variants. Why? Because as we have already seen several times in this dissertation, St. Thomas frequently avers to hylomorphism when he wants to describe the relationship between two related and complementary realities. Thus, it is not unreasonable to think that he would have used the matter-form analogy to address this perennially thorny question had he chosen to explicitly do so.

As we discussed above, non-cooperative theories of cooperation fail because they cannot explain the experiences of Christians who appear to develop acquired natural virtues through the performance of supernatural acts. Next, essentially-cooperative theories fail because they are unable to account for those experiences where Christians in the state of grace are able to exercise acts of natural and supernatural virtue independently of each other. Moreover, as Angela McKay-Knobel has shown – convincingly, in my view – there are texts from St. Thomas that suggest that he thought

that the distinction between the natural and the supernatural ends that distinguish the categories of acquired and infused virtue require that the Christian in the state of grace needs to have distinct virtues that can give rise to distinct kinds of acts, natural or supernatural.[112]

This leaves us with the accidentally-cooperative theories of virtue where an agent's natural and supernatural acts can either be distinguished from each other as distinct acts, or be unified into one act. Here the agent cause in the state of grace possesses both the acquired and the infused virtues as forms informing the same appetitive power. For Klubertanz, the Christian can perform a distinct natural act, a distinct supernatural act, or a mixed act that is materially natural and formally supernatural, depending upon his motives. Natural acts would lead to the growth of acquired virtues while supernatural acts would redound to the development of their supernatural counterparts. As we noted above, however, this theory is able to explain most of the data. However, it has an apparent weakness: It fails to explain cases where Christians like the pre-diabetic monk who choose to perform supernatural acts alone, appear to acquire the corresponding natural virtue, though it can explain the obverse cases where Christians like the lax seminarian who choose to perform supernatural acts alone do not acquire the corresponding natural virtue.

How do we address this failing in the theory? I propose tweaking Klubertanz's theory in the following way. In addition to all that he has proposed, I submit that the repetitious acts of supernatural virtue – *pace* Klubertanz – do facilitate the acquisition of

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[112] Angela McKay Knobel, "Can Aquinas's Infused and Acquired Virtues Coexist in the Christian Life," *Studies in Christian Ethics* 23 (2010): 381-396.

their natural counterparts, even in the absence of the agent's explicit motive to regard the law of reason. Take the pre-diabetic monk. In my view, five decades of self-denial and self-mastery with respect to food and drink for the Kingdom of God would inevitably redound to the dispositive character of the monk's concupiscible appetite. In other words, after fifty years of abstinence and fasting, the monk's ability to deny himself of food regardless of motive should be easier for him now than it was when he was a novice. Not surprisingly, this would enhance his facility to acquire the natural virtue of temperance when he is encouraged to do so by his physician. This would explain the case of the pre-diabetic monk.

But what about the lax seminarian? Why do his acts of supernatural virtue – his fasting and abstaining on Fridays and in Advent and in Lent – not redound to the acquisition of natural virtue as it did for the pre-diabetic monk? Note that the asking of this question presupposes that the two cases are comparable. I would suggest, however, that they are not. They are different because the pre-diabetic monk practiced acts of supernatural virtue without practicing acts of natural vice opposed to that virtue. He was always fasting and abstaining in the monastery, and there were few to no opportunities for him to indulge in excess food or drink. That is the advantage of monastic observance within the context of a monastic community. In contrast, the lax seminarian would fast and abstain when he had to in the seminary, but would then indulge in venial acts of intemperance when he could. In fact, these are the venial acts that make him a lax rather than an observant seminarian. These are also the venial acts of vice that prevent him from acquiring any facility to natural virtue from the practice of supernatural acts of temperance.

Thus, to correct the weakness in Klubertanz's theory, I would modify it by proposing that supernatural acts of virtue can in fact facilitate the acquisition of natural virtues even if the Christian does not refer those acts to right reason. However, this can only happen if the Christian in the state of grace does not engage in acts of vice that are opposed to the growth of that natural virtue. With this amendment, I think that Klubertanz's theory is now able to explain all the experiential data of the life of the Christian in the state of grace. It would be able to explain how the acquired and the infused virtues interact – as matter and form – and how they facilitate or impede the practice of natural and supernatural acts proceeding from their counterpart virtue. It is one proposal to account for the dynamic movements within life of grace.

The Genealogy of the Infused Virtues and their Acquired Counterparts

The discussion in this chapter has focused so far on the relationship between the acquired and the infused virtues when they co-exist in the life of the graced individual. Now we turn to a related question: Do the infused virtues *necessarily* presuppose the existence of their acquired counterparts? Or to put it another way, does the genealogy of the infused virtues *necessarily* include their acquired counterparts?

In his essay, "The Nature-Grace Question in the Context of Fortitude," Lee Yearley makes two arguments for the claim that the infused virtues "presuppose" their acquired counterparts. First, he proposes that a supernatural act of martyrdom would be vitiated or even destroyed by the absence of acquired fortitude.[113] For Yearley, a martyr

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[113] Lee H. Yearley, "The Nature-Grace Question in the Context of Fortitude," *The Thomist* 35 (1971): 557-580; p. 573.

who does not value or love worldly goods enough because he lacks natural fortitude would not find it difficult to give them up, diminishing the excellence of his heroic act of renunciation. In his view, a martyr of this kind would suffer an act of martyrdom that "would instead be characterized by ease."[114] Second, Yearley contends that the development of natural fortitude is a "necessary first step" in "the sequential development of man."[115] Here, he proposes that a human being cannot order himself to heavenly things unless he first puts himself into an ordered relation according to right reason to natural things, which requires natural fortitude.

In response, Angela McKay-Knobel rightfully points out that Yearley's first argument is contradicted by the experiential data of the Christian martyrs of history who appear to have lacked acquired fortitude, at least in the sense that Yearley defines it, as properly possessing and valuing all of this world's goods.[116] For instance, given their vow of poverty and the rigor of their vowed life, it is unlikely that all of the Dominican friars who were martyred in China, Vietnam, and Japan, in the 17th and 18th centuries would have loved the things of the world as Yearley imagines they would have. In fact, there is evidence that days and months before their martyrdom in Vietnam, the friars preachers were willing to forego food rather than renounce their faith.[117] As McKay-Knobel correctly notes, therefore, to explain their heroism, we have to look, not at their natural

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[114] Ibid.

[115] Ibid., p. 574.

[116] McKay, "The Infused and Acquired Virtues in Aquinas' Moral Philosophy," p. 193.

[117] For historical details, see the narrative in Valentine de Berrio-Ochoa, "From a Letter of Saint Valentine de Berrio-Ochoa, Vicar Apostolic of Central Tonkin. Alternative Second Reading for the Memorial of Sts. Francis de Capillas and Alfonsus Navarrete, Friars and Priests, and Companions, January 15," in *Supplement to the Liturgy of the Hours for the Order of Preachers,* 2nd ed. (Manila: Commission on Liturgy and Prayer, Dominican Province of the Philippines, 2012), pp. 89-92.

fortitude, but at their supernatural charity, for it is supernatural charity that motivates martyrdom. And since there is no necessary correlation between the intensity of the martyrs' charity and the presence or absence of their natural virtue, she rightly argues that there is no need to think that supernatural acts of martyrdom necessarily presuppose natural fortitude.[118] This is certainly correct. Nonetheless, I do want to add that it is striking that the martyrdom of a coward, a man who unreasonably clings to his life and to his world in the face of death – I am thinking here of the Apostle Peter who denied his Lord before eventually embracing crucifixion upside down – is considered a more excellent act of martyrdom precisely because his supernatural act of fortitude appears to have transformed him in spite of his having its natural contrary vice. Therefore, in opposition to Yearley's claims, the absence of natural fortitude does not necessarily make martyrdom easy. It may even make it more difficult.

As for Yearley's second argument that natural fortitude is necessary for the natural development of the virtuous human agent, McKay-Knobel makes a distinction: For St. Thomas, it is true that the cultivation of an acquired virtue disposes the pagan for its infused counterpart. In this sense, natural fortitude is a "first step" for its infused correlate. However, in her view, it is also clear that Yearley's proposal does not apply to the justified Christian who is called to live the meritorious life of grace: "If [Yearley] means that the individual in the state of grace should not even attempt to perform

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[118] McKay, "The Infused and Acquired Virtues in Aquinas' Moral Philosophy," pp. 193-194.

supernatural acts until he first acquires the virtues, then his claim is certainly false."[119] McKay-Knobel is certainly correct.

However, I would also add that as I explained above, in my view, acts of supernatural virtue actually predispose the Christian to natural virtue as long as he does not engage in contrary acts of vice. Recall the pre-diabetic Trappist monk who after spending a life abstaining and fasting as part of his monastic observances was then predisposed to a life without cholesterol and salt in his diet. Thus, there is no need for the Christian believer to practice natural acts of virtue instead of their supernatural counterparts. By performing acts of a supernatural virtue, he can predispose himself to its acquired counterpart, again, as long as he is not simultaneously engaging in contrary acts of natural vice.

Faith as the Infused Counterpart for the Acquired Speculative Virtues

Much has been written on the infused moral virtues and on their relationship to their acquired counterparts. In contrast, relatively little has been written on the infused intellectual virtues, other than the infused intellectual virtue of faith. In fact, to the best of my knowledge, St. Thomas never mentions infused counterparts for the acquired speculative virtues of understanding, of sure knowledge, and of wisdom. Because of this, John Rziha, a contemporary Thomistic commentator, has recently proposed that

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[119] Ibid., p. 195.

"[h]umans are able to reason from propositions of faith by means of their naturally acquired virtues of [sure knowledge] and wisdom."[120]

I would like to conclude this chapter by proposing that St. Thomas does not mention the infused speculative virtues because they do not and cannot exist within his hylomorphic schema of the virtues. Rather, the theological virtue of faith, informed by the theological virtue of charity, and capacitated by the gifts of understanding, of sure knowledge, and of wisdom, takes their place as the infused counterpart for acquired understanding, acquired sure knowledge, and acquired wisdom. Thus, *pace* Rziha, in my view, only a Christian in the state of grace can properly reason from propositions of faith to their conclusions. Only a Christian in the state of grace can do theology, properly understood. Moreover, given the link discussed above between the acquired virtues and their infused counterparts, this account suggests that theological reasoning can facilitate philosophical reasoning in the practice of Christian philosophy. This is one way of understanding the Catholic Church's firm conviction that faith can legitimately assist reason without violating the proper autonomy of each.

So why does St. Thomas not mention the infused speculative virtues of understanding, of sure knowledge, and of wisdom? In my view, he does not because they do not and cannot exist within his hylomorphic schema of the virtues. Recall that for St. Thomas, the virtues are specified by their object. Thus, though all the moral virtues are associated in one way or another with justice, which is in respect of something due to another, they differ in that:

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[120] John Rziha, *Perfecting Human Actions: St. Thomas Aquinas on Human Participation in Eternal Law* (Washington, DC: Catholic University of America Press, 2009), p. 237.

The debt is not of the same kind in all these virtues for something is due to an equal in one way, to a superior, in another way, to an inferior, in yet another, and the nature of a debt from a contract, a promise, or a favor, differs. Corresponding to these various kinds of debt there are various virtues including religion through which we pay our debt to God, piety through which we pay our debt to our parents or to our country, and gratitude through which we pay our debt to our benefactors, and so forth.[121]

Virtues are specified and distinguished by their objects. Recall also that the acquired speculative virtue of understanding regards the knowing of those self-evident first principles of knowledge; that the acquired speculative virtue of sure knowledge regards the knowing of different kinds of knowable matter; and that the acquired speculative virtue of wisdom regards the first cause of knowable matter.[122] Given these acquired virtues, what would their corresponding infused counterparts look like? How would we specify each one of them?

Recall again that one can distinguish an acquired and an infused virtue by their final cause where the former is ordered towards a natural end and the latter is ordered towards a supernatural one. Therefore, the difference between the acquired and the infused speculative virtues would be such that the latter would have "supernaturalized"

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[121] *STh* I-II.60.3: "Debitum non est unius rationis in omnibus, aliter enim debetur aliquid aequali, aliter superiori, aliter minori; et aliter ex pacto, vel ex promisso, vel ex beneficio suscepto. Et secundum has diversas rationes debiti, sumuntur diversae virtutes, puta religio est per quam redditur debitum Deo; pietas est per quam redditur debitum parentibus vel patriae; gratia est per quam redditur debitum benefactoribus; et sic de aliis."
[122] *STh* I-II.57.2.

objects of the former as their end. Thus, the infused speculative virtue of understanding would have to concern itself with the knowing of those "supernaturalized" self-evident first principles of knowledge, i.e., knowledge of God in Himself. But this is already the object of the theological virtue of faith:

> Accordingly the object of faith can be considered in two ways. In one way, on the part of thing itself that is believed, and thus the object of faith is something simple, namely the thing itself about which we have faith. In the second way, on the part of the believer, and in this respect the object of faith is something complex by way of a proposition.[123]

Without distinct objects to differentiate them, the infused speculative virtue of understanding would be indistinguishable from the infused theological virtue of faith.

In the same way, the infused speculative virtue of sure knowledge would have to concern itself with the knowing of "supernaturalized" conclusions derived by the intellect from the first "supernaturalized" principles of faith. However, since the first "supernaturalized" principles grasped by the intellect under grace concern God in Himself and everything in relation to Him, these conclusions of infused sure knowledge would also be about God in Himself. It would be a sure knowledge (*scientia*) about God. It would be *sacra doctrina,* which "is established on principles revealed by God."[124] However, as such, they would fall within the object of the theological virtue of faith, which regards "not only God in Himself, but also many other things, which, however, do

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[123] *STh* II-II.1.2: "Sic igitur obiectum fidei dupliciter considerari potest. Uno modo, ex parte ipsius rei creditae, et sic obiectum fidei est aliquid incomplexum, scilicet res ipsa de qua fides habetur. Alio modo, ex parte credentis, et secundum hoc obiectum fidei est aliquid complexum per modum enuntiabilis."

[124] *STh* I.1.2: "Credit principia revelata sibi a Deo."

not fall under the assent of faith, except as they are ordered to God, in so far as a man is helped on his journey towards the enjoyment of God through the effects of God's work."[125] Once again, the infused speculative virtue of sure knowledge would be indistinguishable from the infused theological virtue of faith.

Finally, the infused speculative virtue of wisdom would have to concern itself with the knowing of the "supernaturalized" first cause, which of course is God as He knows Himself. This wisdom above all human wisdom is once again the wisdom of *sacra doctrina,* whose "principles do not stand upon principles from human knowledge but from the divine knowledge, through which, as the highest wisdom, all our learning is set in order."[126] Once again, however, this object for an infused speculative virtue of wisdom would be identical to the object of the theological virtue of faith, especially faith informed by charity, which gives the agent cause an affective knowledge of his Beloved. Thus, St. Thomas can and will say: "The wisdom which the Philosopher includes as an intellectual virtue, considers Divine things in so far as they are able to be investigated by human reason. But theological virtue is about those same things in so far as they exceed human reason."[127] But why does St. Thomas refer to the theological virtues together here rather than to the theological virtue of faith alone? Because for the Angelic Doctor, the

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[125] *STh* II-II.1.1: "Non solum est ipse Deus, sed etiam multa alia. Quae tamen sub assensu fidei non cadunt nisi secundum quod habent aliquem ordinem ad Deum, prout scilicet per aliquos divinitatis effectus homo adiuvatur ad tendendum in divinam fruitionem."
[126] *STh* I.1.6: "Non supponit sua principia ab aliqua scientia humana, sed a scientia divina, a qua, sicut a summa sapientia, omnis nostra cognitio ordinatur."
[127] *STh* I-II.62.2 ad 2: "Sapientia quae a philosopho ponitur intellectualis virtus, considerat divina secundum quod sunt investigabilia ratione humana. Sed theologica virtus est circa ea secundum quod rationem humanam excedunt."

theological virtues all have the same object, who is God, but under different formal

aspects (*rationes*):

> Accordingly charity makes human beings adhere to God for His own sake,
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> uniting their minds to God through the affect of love…Accordingly faith
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> makes human beings adhere to God, as He is the principle of our knowing
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> truth. As such we believe those things God has told us to be true.[128]

Nonetheless, we would have to conclude again that the infused speculative virtue of

wisdom is not distinguishable from the infused theological virtue of faith. Both would

have God as first truth as their objects.[129]

In light of this analysis, I propose that St. Thomas does not speak about the

infused speculative virtues because they do not and cannot exist within his hylomorphic

schema of the virtues. They would be indistinguishable from the theological virtue of

faith. However, this does not mean that human agents are able to reason from

propositions of faith by means of their naturally acquired virtues of sure knowledge and

wisdom, as Rziha has proposed. Instead, I suggest that human agents would only be able

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[128] *STh* II-II.17.6: "Caritas igitur facit hominem Deo inhaerere propter seipsum, mentem hominis uniens Deo per affectum amoris…Fides ergo facit hominem Deo inhaerere inquantum est nobis principium cognoscendi veritatem, credimus enim ea vera esse quae nobis a Deo dicuntur."

[129] It is striking that when St. Thomas wants to distinguish faith and vision both of which appear to have God as First Truth as their object, he distinguishes them by more precisely distinguishing their objects: "First truth, in so far as it appears in its proper species, is the object of the vision of heaven. But, in so far as it does not appear, it is of faith. Therefore, although the object of both acts is the same thing in reality, it differs according to reason. Thus the formally different object diversifies the species of the act different." *De veritate* q 14 a 8 ad 3: "Veritas prima est obiectum visionis patriae ut in sua specie apparens, fidei autem ut non apparens; unde etsi idem sit re utriusque actus obiectum, non tamen est idem ratione. Et sic formaliter differens obiectum diversam speciem actus facit." I contend that it would not be possible to do the same between the infused speculative virtue of wisdom and the theological virtue of faith.

to do this – to do theology understood as *sacra doctrina* – in the state of grace. With grace, the theologian – or even the old woman with simple faith – is able to perform supernaturalized intellectual acts from the theological virtue of faith infused by the theological virtue of charity that is capacitated by distinct gifts of the Holy Spirit. When he grasps the first principles of the Catholic faith, it is a supernatural act of informed theological faith capacitated by the infused gift of understanding. When he reasons from these first principles to the conclusions of *sacra doctrina*, it is a supernatural act of informed theological faith capacitated by the infused gift of sure knowledge. When he seeks to understand the highest wisdom, which is a participation in God's own knowledge, it is a supernatural act of informed theological faith capacitated by the infused gift of wisdom. These three acts are different supernatural acts, but they are acts of the same virtue, the infused theological virtue of faith, which I propose is the infused counterpart of the three acquired speculative virtues.[130]

Finally, given everything that we have discussed about the dynamic relationship between the infused virtues and their acquired counterparts, my proposal also suggests that theological reasoning should facilitate philosophical reasoning in the practice of Christian philosophy without violating the proper autonomy of each. It would do this in two ways. First, supernatural acts of faith should facilitate the intellects ability to exercise natural acts of acquired understanding, sure knowledge, and wisdom, in the same way that supernatural acts of temperance facility the exercise of natural acts of the

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[130] In light of this analysis, one could propose that the infused speculative virtues of understand, of sure knowledge, and of wisdom, are sub-virtues of the theological virtues of faith. However, a more extensive discussion of this proposal would be beyond the scope of this dissertation.

corresponding acquired virtue. Second, the intellect elevated by grace can grasp revealed truths that it can now reason to using its own natural capacity. It is akin to the detective who uses his investigative skills to build a case against a suspected criminal whose identity had been revealed to him by an informant. His knowing the suspect's identity does not supplant or obviate the need for his detective skills. In the same way, the Christian philosopher who knows that the Triune God created the world via divine revelation can still reason to this conclusion using philosophical methods that maintain the autonomy between philosophy and theology.

Conclusion

I opened this chapter by acknowledging the need for Catholic moral theologians to explain those experiential transformations in the Christian believer that are effected by grace. As many had done before me, I have proposed that St. Thomas's account of how God infuses virtues to complement the believer's acquired counterparts is one model of this transformation, though strikingly, he does not – and as I have argued above, could not – include infused counterparts for the acquired speculative virtues.

Unfortunately for his successors, the Angelic Doctor did not explicitly address the relationship between these two categories of habits. As we have already seen several times in this dissertation, however, St. Thomas frequently avers to hylomorphism when he wants to describe the relationship between two related and complementary realities. Therefore, in my view, it is not unreasonable to think that he would have used the matter-form analogy here as well, had he chosen to address this question more directly in his work. If he had done so, I have argued that he would have chosen to use, what I have

called, an accidentally-cooperative theory of cooperation to describe the interaction between the acquired and infused virtues because this account has the most explanatory power.

In sum, like Chapter Two, this chapter illustrates how an understanding of hylomorphic theory and its analogous use in St. Thomas's moral theology can allow us to clarify and to resolve a perennial disputed question in his theological synthesis. In the next chapter, we move to a hylomorphic investigation of human speech acts to illustrate how this same perspective can allow us to update St. Thomas's moral theology so that it can incorporate novel insights from comparative physiology and analytic philosophy.

CHAPTER FIVE

Is Every Deliberately Willed Spoken Falsehood, a Lie?
A Hylomorphic Investigation of Sinful Speech Acts

<u>Introduction</u>

When I first arrived in the United States as an undergraduate, I did not know that the colloquial American greeting, "How are you doing?" is *not* a question asking me about how I was truly feeling. In fact, I remember stopping in front of the university library to tell a fellow student who had just addressed me with that greeting, that I was *not* well. The perplexed and uncomfortable look I received in response to my admission of illness made me realize that I had misspoken when I had answered his greeting truthfully. At that moment, I discovered that his four-word utterance was not a question. I also discovered that there is only one proper response to this utterance, and that this is to affirm that one is well, regardless of how one is truly feeling: "How are you doing? Pretty good, thank you." It was the first time that I realized that some utterances that sound like questions are not *bona fide* inquiries seeking information. Rather they function in other ways, in this case, as a greeting that invited me into a social exchange of vocalizations that is determined by social convention.

Many years later, I was taught that for St. Thomas, responding to a greeting asking how you are, in any way other than to truly reveal your well-being or lack thereof, would involve your committing a sin, albeit a venial one. For the Angelic Doctor, every intentionally spoken falsehood is a lie because it disorders speech from its unique and proper end, which is to reveal the content of the speaker's mind: "Since, therefore, speech

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was established in order to express the conception of the heart, whenever someone speaks that which is not in the heart, he speaks that which he should not. This however happens in every lie. As such, every lie is a sin, even if someone lies for a good reason."[1] In my pastoral experience, however, the everyday intuitions of many faithful Christian believers reject this Thomistic conclusion with regards to commonplace everyday greetings. I think that they are correct in doing so.[2]

In this chapter of my thesis, I undertake a hylomorphic investigation of the structure of human speech acts to argue that not all spoken falsehoods constitute lies because not all spoken falsehoods involve disordered speech. Because of this, I assert that greetings do not have to be answered with truthful self-revelations. I begin with a detailed analysis of St. Thomas's understanding of lying as a vice contrary to truth with a particular focus on the hylomorphic description of speech acts that he uses to evaluate their morality. At the heart of his claim that all intentionally spoken falsehoods are lies is his belief that speech has only one function, and that this is its declarative function. In other words, for the Angelic Doctor, speech must signify. In response to this claim, I propose that St. Thomas failed to appreciate that human vocalizations have multiple ends in the order of nature, including functions that do not involve signification, a claim

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[1] See Thomas Aquinas, *In Sent.* III.38.1.3 co.: "Cum autem locutio inventa sit ad exprimendam conceptionem cordis, quandocumque aliquis loquitur quod in corde non habet, loquitur quod non debet. Hoc autem contingit in omni mendacio; unde omne mendacium est peccatum, quantumcumque aliquis propter bonum mentiatur."

[2] The contemporary scholarly literature on lying is vast. In addition to the other works cited in this chapter, recent books in contemporary and analytic philosophy that deal with lying that have helped me contextualize the discussion in this chapter include the following: Harry G. Frankfurt, *On Bullshit* (Princeton: Princeton University Press, 2005); Thomas L. Carson, *Lying and Deception* (Oxford: Oxford University Press, 2010); and Jennifer Mather Saul, *Lying, Misleading & What is Said* (Oxford: Oxford University Press, 2012).

supported by evidence from studies of primate vocalization and by evidence from studies of contemporary speech act theory in the philosophy of language.

To reconcile the Angelic Doctor's philosophical and theological synthesis with recent developments in the linguistic study of context-dependent meaning known as pragmatics, I then propose that to properly investigate the morality of human speech acts from the perspective of the Thomistic tradition, we must recognize that the human speaker is an efficient cause who is capable of informing the same material cause of the speech act (in the terminology of speech act theory, the locutionary act) with numerous formal causes (the illocutionary acts) to attain a particular final cause (the perlocutionary act).

Finally, I close by using this Thomistic theory of speech acts to grapple with three disputed questions in contemporary moral theology, the perennial lying-during-espionage case, the classic lying-to-the-Gestapo case and the recent lying-to-Planned-Parenthood case that has perplexed Catholic moralists. This chapter will illustrate how an understanding of hylomorphic theory and its analogous use in St. Thomas's theory of speech acts can allow us to develop his moral theology so that it can incorporate insights from comparative physiology and analytic philosophy.

An Aristotelian Characterization of a Lie

In the *Summa theologiae*, St. Thomas's *questio* on lying as a vice contrary to truth is found within the treatise on justice (*STh* II-II.110). For the Angelic Doctor, this is intentional, for lying, in his view, is an unjust act where the liar does not give to his hearer what is due to him, which is the truth, defined by St. Thomas as that virtue that adequates

a sign to the thing that it signifies.[3] He begins his analysis with a description of the lie as a human act that can be specified by its four Aristotelian causes that make up its ontological structure. Not surprisingly, his use of matter-form language is particularly striking here.

For St. Thomas, the defining characteristic of a lie is the nonconformity between what is spoken and what is in the speaker's mind: "The essential notion of a lie is taken from formal falsehood, from the fact namely, that a person has a will to say a falsehood. Thus the word, a lie, [*mendacium*] is derived from its being contrary to the mind."[4] Here he echoes St. Augustine who had defined sins as those spoken words that are contrary to one's mind, i.e., *contra mentem*: "But all lies must be called a sin, because a man, not only when he knows the truth, but even when he is mistaken and deceived, as a man may be, ought to say what he has in his mind, whether it is true, or whether he only thinks it to be true. But every one who lies says the opposite of what he thinks in his mind, with a will to deceive."[5]

As an Aristotelian, St. Thomas decomposed the lie into its four causal principles.[6] First, the liar is the efficient cause of the lie. He is the agent cause who crafts the lie. A lie cannot be a lie without a liar. Next, the falsehood itself, the nonconformity between what

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[3] *STh* II-II.109.3.

[4] *STh* II-II.110.1: "Sed tamen ratio mendacii sumitur a formali falsitate, ex hoc scilicet quod aliquis habet voluntatem falsum enuntiandi. Unde et mendacium nominatur ex eo quod contra mentem dicitur."

[5] St. Augustine, *Enchiridion*, no. 22: "Porro autem omne mendacium ideo dicendum est esse peccatum quia homo, non solum quando scit ipse quid verum sit sed etiam si quando errat et fallitur sicut homo, hoc debet loqui quod animo gerit, sive illud verum sit sive putetur et non sit. Omnis autem qui mentitur, contra id quod animo sentit loquitur, voluntate fallendi."

[6] *STh* II-II.110.1.

is spoken and what is in the mind, is the material cause of a lie. However, the falsehood in itself is not enough for a speech act to be a lie. A person who utters a falsehood without realizing that he is speaking falsely – say a man who mistakenly tells his office colleague that it is sunny because he had been outside earlier, when it has in fact begun to drizzle – cannot be lying. To account for this, St. Thomas thought that in order for the speaking of the falsehood to be an act of lying, the agent as an efficient cause must be willing to speak the falsehood precisely as an untruth, i.e., as an utterance *contra mentem*. He must actualize the potency in his speech by giving his words the specific form of an untruth. Thus, the willingness of the liar to speak the falsehood, his intention to speak *contra mentem*, constitutes the formal cause of the lie. Finally, the final cause of the lie is the intention to deceive the listener. Or to put it another way, the deception of the listener is the *telos* of a lie. In the same way that an efficient cause imposes a form upon matter in order to attain an end, a liar wills to utter an untruth precisely as a false utterance *contra mentem* in order to deceive his listener. Notably, for St. Thomas, the intention to deceive, the final cause of the lie, is not an essential constituent of a lie for it is the form and not the end that specifies every action, making it an action of this kind rather than that kind: "The desire to deceive belongs to the perfection of lying, but not to its species, even as an effect does not belong to the species of its cause."[7] In this way, he appears to differ from St. Augustine who had believed that the intent to deceive was a necessary component for a lie to be a lie: "A lie is false signification together with an intent to deceive."[8]

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[7] *STh* II-II.110.1 ad 3: "Cupiditas fallendi pertinet ad perfectionem mendacii, non autem ad speciem ipsius, sicut nec aliquis effectus pertinet ad speciem suae causae."
[8] St. Augustine, *Contra mendacium*, no. 26: "Mendacium est quippe falsa significatio cum voluntate fallendi." However, Paul J. Griffiths proposes that this definition should not be

In light of this hylomorphic analysis of a lie, St. Thomas will be able to make two additional distinctions to further characterize the speaking of falsehoods. First, there are spoken falsehoods that are false materially but not formally. This obtains, for the Angelic Doctor, in the following scenario: "If someone says what is false, thinking it to be true, it is false materially, but not formally, because the falseness is outside the intention of the speaker. Hence, it is not a perfect lie, since what is outside the speaker's intention is accidental and as such cannot be a specific difference."[9] The example described above of the man who mistakenly tells his office colleague that it is sunny because he had been outside earlier, when it has in fact begun to drizzle, is an instance of a material falsehood. It is not a lie properly so called. Rather it is an utterance that is simply erroneous.

In contrast, there are spoken falsehoods that are false formally but not materially. This obtains in the following scenario: "If, however, someone utters' falsehood formally, having the will to speak falsely, even if what he says is true, inasmuch as this is a voluntary

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taken literally: "Duplicity is, to say it again, the evil proper to lying, and I read Augustine as claiming that this is both necessary and sufficient for the lie. That the lie is usually also accompanied by an intention to deceive is true and of interest, but it does not pick out what is most deeply characteristic of the lie, and is not relevant to the exceptionless ban on the lie that Augustine advocates." Paul J. Griffiths, *Lying: An Augustinian Theology of Duplicity* (Grand Rapids: Brazos Press, 2004), p. 29. Regardless of Griffith's arguments, it is clear that St. Thomas thought that St. Augustine had included the intent to deceive within the definition of a lie: "Further, Augustine says that the *liar's sin is the desire to deceive*." (*STh.* II-II.110.1 Obj 3: "Praeterea, Augustinus dicit, in libro contra mendacium, quod *culpa mentientis est fallendi cupiditas*.") More recently, Chisholm and Feehan have included the intent to deceive as a necessary condition for an utterance to be a lie. See their paper, R. Chisholm and T. Feehan, "The intent to deceive," *Journal of Philosophy* 74 (1977): 143-159. In contrast, Thomas L. Carson has made a strong case against the requirement that lying include the intention to deceive. See his "The Definition of Lying," *Noûs* 40 (2006): 284-306.

[9] *STh* II-II.110.1: "Et ideo si quis falsum enuntiet credens illud verum esse, est quidem falsum materialiter, sed non formaliter, quia falsitas est praeter intentionem dicentis. Unde non habet perfectam rationem mendacii, id enim quod praeter intentionem est, per accidens est; unde non potest esse specifica differentia."

and moral act, his speech contains falsehood essentially and truth accidentally."[10] An example would be a man who tells his office colleague that it is raining outside to delay her from going home, though he thinks that it is sunny because he had been outside earlier, when it has in fact begun to drizzle. For St. Thomas, an utterance of this kind "attains the specific nature of a lie."[11] Hence, according to the Angelic Doctor, "lying is directly and formally opposed to the virtue of truth."[12]

Finally, I should note that for St. Thomas, the speaking of words is not a necessary aspect of lying. One can lie with other signs as well: "And so when it is said that 'a lie is a false signification by words,' the term 'words' denotes every kind of sign. Consequently, he who intended to signify something false by means of signs would not be excused from lying."[13] The deaf and the dumb like the hearing and speaking are capable of lying as well.

A Thomistic Taxonomy of Lies

St. Thomas then moves to distinguish lies by dividing them in three different ways.[14] First, as Aristotle had done before him, he distinguishes lies that exceed the mean, which is the truth, and these are called boasts, from lies that fall short of the truth, and these are called ironies. As St. Thomas explains, this division "is an essential division of lying, because lying as such is opposed to truth, as has been stated, and truth is a kind of

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[10] Ibid: "Si vero formaliter aliquis falsum dicat, habens voluntatem falsum dicendi, licet sit verum id quod dicitur, inquantum tamen huiusmodi actus est voluntarius et moralis, habet per se falsitatem, et per accidens veritatem."
[11] Ibid.: "Unde ad speciem mendacii pertingit."
[12] Ibid.: "Sic ergo patet quod mendacium directe et formaliter opponitur virtuti veritatis."
[13] *STh* II-II.110.1 ad 1: "Et ideo cum dicitur quod mendacium est falsa vocis significatio, nomine vocis intelligitur omne signum. Unde ille qui aliquod falsum nutibus significare intenderet, non esset a mendacio immunis."
[14] *STh* II-II.110.2.

equality, to which more and less are in essential opposition."[15] In other words, for St. Thomas, declarative utterances can be more or less truthful, more or less false. As the virtue that adequates a sign to the thing that it signifies, truth is a matter of degree.

Next, the Angelic Doctor distinguishes lies by their gravity as sins, "with regard to those things that aggravate or diminish the sin of lying, on the part of the end intended."[16] Here, there are three kinds of lies. There are lies that are intended to injure, and these are mischievous lies; there are lies that are intended to amuse, and these are jocose lies; and then there are lies that are intended to benefit somebody, and these are officious lies.

Finally, St. Thomas divides these three broad categories into eight further kinds of lies, "with respect to their relation to some end, whether or not this increases or diminishes the culpability of lying."[17] Four kinds aggravate the sin of lying including mischievous lies against God, which are lies "in religious doctrine." In contrast, four kinds diminish the gravity of the sin, including jocose lies, which are told "with a desire to please" and officious lies, "which saves a man from death." Here, the guiding principle for St. Thomas is a straightforward one: "the greater the good intended, the more diminished is the culpability of the sin of lying."[18]

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[15] Ibid: "Haec autem divisio ideo per se est ipsius mendacii, quia mendacium, inquantum huiusmodi, opponitur veritati, ut dictum est, veritas autem aequalitas quaedam est, cui per se opponitur maius et minus."
[16] Ibid.: "Alio modo potest dividi mendacium inquantum habet rationem culpae, secundum ea quae aggravant vel diminuunt culpam mendacii ex parte finis intenti."
[17] Ibid.: "Tertio modo dividitur mendacium universalius secundum ordinem ad finem, sive ex hoc addatur vel diminuatur ad culpam mendacii, sive non."
[18] Ibid.: "Patet autem quod quanto bonum intentum est melius, tanto magis minuitur culpa mendacii."

The Moral Structure of a Lie

At the conclusion of his investigation of lying as a vice contrary to truth, St. Thomas examines the lie under the category of sin. In his view, a lie is a sin, i.e., it is evil, because "it is an action bearing on undue matter."[19] He explains that the material principle of speech acts, the words as natural signs of intellectual acts, have to be specified, i.e., they have to be informed by the truth that conforms words to thoughts, if they are to be ordered rightly: "For as words are naturally signs of intellectual acts, it is unnatural and undue for anyone to signify by words that which he does not have in his mind."[20] The defect in the formal cause of the lie as a speech act makes it evil, "since in order for an action to be good, it must be right in every respect, because good results from a complete cause, while evil results from a single defect."[21] Recall from Chapter One that for St. Thomas, an evil act obtains when an agent causes a form to come to be that leads to the privation of a proper form in a thing, where a proper form is that form that is perfective of that thing's nature. Lies are evil because they deprive spoken words of their proper formality, which is the signification of what is in the speaker's mind, i.e., the truth.

Importantly, for St. Thomas, a lie is a sin primarily because it is inordinate as a speech act and not because it injures one's neighbors. Thus, in his view, a spoken falsehood can never be justified even if it benefits another:

Now it is not lawful to make use of anything inordinate in order to ward

off injury or defects from another just as it is not lawful to steal in order to

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[19] *STh* II-II.110.3-4: "Est enim actus cadens super indebitam materiam."

[20] *STh* II-II.110.3: "Cum enim voces sint signa naturaliter intellectuum, innaturale est et indebitum quod aliquis voce significet id quod non habet in mente."

[21] Ibid.: "Quia ad hoc quod aliquid sit bonum, requiritur quod omnia recte concurrant; bonum enim est ex integra causa, malum autem est ex singularibus defectibus."

give alms (except perhaps in a case of necessity when all things are common). Therefore it is not lawful to tell a lie in order to deliver another from any danger whatsoever.[22]

Like St. Augustine before him, St. Thomas held an absolute view that all intentional speech acts spoken *contra mentem* are lies.

As we discussed above, however, the Angelic Doctor recognized that the gravity of a lie admits of degrees where "the greater the good intended, the more diminished is the culpability of the sin of lying."[23] Here, he begins his analysis by making clear that a mortal sin, by definition is a human act that is contrary to charity, "whereby the soul lives in union with God."[24] St. Thomas then distinguishes between lies that are contrary to charity essentially in themselves, i.e., in respect of the evil end intended, and those that are contrary to charity only accidentally. Lies of the first kind are those lies that are contrary to charity by reason of their false signification. Of these, those lies whose falsehood are contrary to a divine truth and those lies whose falsehoods are contrary to human truths that injure another, are mortal sins. In contrast, those lies whose falsehood is contrary to human truths that do not harm another would not be mortal sins.

Next, lies of the second kind are those lies that are contrary to charity because of their intended purpose. Those lies that are said to injure God and those lies that are said

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[22] *STh* II-II.110.3 ad 4: "Non licet autem aliqua illicita inordinatione uti ad impediendum nocumenta et defectus aliorum, sicut non licet furari ad hoc quod homo eleemosynam faciat (nisi forte in casu necessitatis, in quo omnia sunt communia). Et ideo non est licitum mendacium dicere ad hoc quod aliquis alium a quocumque periculo liberet."

[23] *STh* II-II.110.2: "Patet autem quod quanto bonum intentum est melius, tanto magis minuitur culpa mendacii."

[24] *STh* II-II.110.4: "Peccatum mortale proprie est quod repugnat caritati, per quam anima vivit Deo coniuncta."

to injure one's neighbor, in his person, his possessions, or his good name, are mortal sins because these ends are contrary to charity.

Lastly, lies of the third kind are those lies that are not contrary to charity in themselves or in their end. In this category, St. Thomas includes jocose lies and officious lies that are spoken for the good of one's neighbor. These are mere venial sins because they are not essentially but only accidentally repugnant to the order of charity.

Finally, as I alluded to above, in St. Thomas's view, lies are also sinful because they are contrary to the virtue of justice, and not only to the virtue of charity. Elsewhere in the *Summa theologiae*, he argues that when we speak to another, we owe the truth to each other:

> Since man is a social animal, one man naturally owes another whatever is necessary for the preservation of human society. Now it would be impossible for men to live together, unless they believed each another, as declaring the truth to each other. Hence the virtue of truth does, in some manner, regard something as being due.[25]

St. Thomas repeats himself when he speaks of the virtue of friendliness: "Since man is a social animal he owes other men the manifestation of truth without which human society could not endure."[26] Lies are sinful because they are contrary to truth. They are more or less sinful because they are contrary both to charity and to justice, to varying degrees.

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[25] *STh* II-II.109.3 ad 1: "Quia homo est animal sociale, naturaliter unus homo debet alteri id sine quo societas humana conservari non posset. Non autem possent homines ad invicem convivere nisi sibi invicem crederent, tanquam sibi invicem veritatem manifestantibus. Et ideo virtus veritatis aliquo modo attendit rationem debiti."

[26] *STh* II-II.114.2 ad 1: "Quia homo naturaliter est animal sociale, debet ex quadam honestate veritatis manifestationem aliis hominibus, sine qua societas hominum durare non posset."

Indeed, they are unjust because they are uncharitable, and are uncharitable because they are unjust.

The Single Function/Monovalent Nature of Human Speech According to St. Thomas

At the heart of St. Thomas's claim that all intentionally spoken utterances *contra mentem* are lies is his belief that speech has only one function, and that this is its declarative or assertive function. One speaks to manifest oneself and one's judgments. It is a single function theory for human speech, or what I will call a monovalent theory for the nature of human speech, where valence comes from the Latin, *valente*, or capacity.

In his *De Interpretatione*, Aristotle had already acknowledged that there are functions of language other than the declarative one that involves propositional utterances:

> Every sentence has meaning, not as being the natural means by which a physical faculty is realized, but, as we have said, by convention. Yet every sentence is not a proposition; only such are propositions as have in them either truth or falsity. Thus a prayer is a sentence, but is neither true nor false.[27]

Indeed, St. Thomas acknowledges this reality in his commentary on the *De Interpretatione* when he echoes Aristotle, noting that there are functions of speech other than the one that reveals the speaker's intellect:

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[27] Aristotle, *De Interpretatione*, 17 a1-4. [English translation by Ella Mary Edghill in *The Basic Works of Aristotle,* ed. Richard McKeon (New York: Random House, 1941), p. 42.]

Therefore, only enunciative speech in which truth or falsity is found is called interpretation. Other kinds of speech, such as optatives and imperatives, are ordered rather to expressing volition than to interpreting what is in the intellect.[28]

However, when the Angelic Doctor considers truth and falsehood in speech, he does not include the other non-declarative functions of speech in his analysis.[29] Why? Janet Smith proposes – correctly in my view – that St. Thomas holds the view that speech has only one function, and that this is to signify, because of his view of truth, and because of his conviction that our speech ought to reflect the speech of God:

[St. Thomas] holds that everything that exists in the world is a word of God, an expression of what is in the divine mind. Thus, when we are thinking about reality we are forming concepts in our minds of the speech that God has truthfully uttered in creation, and when we communicate by word or deed, we are obliged to seek to make our speech true to God's speech.[30]

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[28] St. Thomas Aquinas, *Commentary on Aristotle's* Perihermenias, Trans. Jean T. Osterle (Milwaukee: Marquette University Press, 1962): "Et ideo sola oratio enunciativa, in qua verum vel falsum invenitur, interpretatio vocatur. Caeterae vero orationes, ut optativa et imperativa, magis ordinantur ad exprimendum affectum, quam ad interpretandum id quod in intellectu habetur."

[29] However, in speaking about angelic speech, he does admit of the distinction between speech that communicates truth concerning God and the nature of things, properly called illumination, and speech that communicates merely of what depends on the will of this or that creature, properly called "merely speech" (cf. *STh* I.107.2). Both functions, of course, involve declarative functions for speech.

[30] Janet Smith, "Fig Leaves and Falsehoods," *First Things* 23 (2011): 45-49, p. 46. St. Thomas writes: "A proposition not only has truth, as other things are said to have truth, in so far as they correspond to that which is the ordination of the divine intellect concerning them; but it is said to have truth in a special way, in so far as it indicates truth

Once again, in doing this, St. Thomas echoes the tradition that he had inherited. St. Augustine too had believed that speech had only one function, and that this is its declarative function to signify what is in the speaker's mind:

> Now it is clear that words were instituted, not so that men might deceive one another, but so that one man might make known his thoughts to another. Therefore, to use words for deception and not for their instituted end is a sin.[31]

Paul Griffiths proposes that St. Augustine's position on the purpose of speech follows from his conviction that the relation between human thought and human speech is an image of the relationship between the eternal divine word and the incarnate word, which is disrupted by a lie:

> [Speech] makes thought audible by invocation, as the divine word was made visible by incarnation. Duplicitous speech – the lie – divides speech from thought. It relates speech and thought inappropriately, improperly, sinfully, and in doing so ruptures God's image in us.[32]

Like St. Thomas, St. Augustine grounded his argument for the single purpose of speech on theological premises.

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of the intellect." *STh* I.16.8 ad 3: "Quod propositio non solum habet veritatem sicut res aliae veritatem habere dicuntur, inquantum implent id quod de eis est ordinatum ab intellectu divino; sed dicitur habere veritatem quodam speciali modo, inquantum significat veritatem intellectus."

[31] St. Augustine, *Enchiridion*, no. 22: "Et utique verba propterea sunt instituta non per quae se homines invicem fallant sed per quae in alterius quisque notitiam cogitationes suas perferat. Verbis ergo uti ad fallaciam, non ad quod instituta sunt, peccatum est."

[32] Griffiths, *Lying*, p. 73.

Evidence for the Multiple Functions/Polyvalent Nature of Human Speech

As I had discovered while going through my initial culture shock in the United States, however, we use speech for different ends. We use them as greetings. We also use them as goodbyes, pleasantries, encouragement, and polite niceties, among others, all functions that facilitate social cohesion. Our everyday experiences suggest that human speech is multifunctional. By nature, it can be ordered towards numerous ends. It is polyvalent.

Two more formal lines of evidence can be put forward to support this claim for the polyvalent theory for the nature of human speech. First, there is the evidence from nonhuman primate vocalizations. These vocalizations have numerous functions within the context of primate society. Given our evolutionary origins, it should not be surprising that human speech too has functions in human societies that correspond to functions that vocalizations have in animal societies. Next, there is the evidence from the philosophical analysis of human language, called speech act theory, which was pioneered by John L. Austin and developed further by his student, John Searle. These philosophers and their successors have amassed and have convincingly defended taxonomies of speech acts that testify to the many ends of human speech.

We turn now to the evidence from the nonhuman primate vocalizations. In his analysis of lying, the Angelic Doctor begins his own moral investigation by pointing to the dumb animals who instinctively manifest themselves in their behavior.[33] He then contrasts the dumb animals with the rational animals who voluntarily manifest themselves in statements that are ordered towards the true or the false. Strikingly, it

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[33] STh. II-II.110.1.

appears that the Angelic Doctor had assumed that the dumb animals have only one end whenever they behave in ways that could signify, and that this is for them to manifest themselves in a manner analogous to human declarative speech. It is not clear why he thought this since it is clear that the vocalizations of the dumb animals, given their irrational nature, would not be able to image divine speech. One possibility is that St. Thomas assumed that animal speech, like all speech, since it originates in the animal's cognitive power is also ordered towards the revelation of this "intellect" that is its origin.[34]

However, recent discoveries have shown that the vocalizations used in nonhuman primate societies are not mere analogs to the human manifestations that St. Thomas had linked them with. Especially when combined with facial expressions, body postures, and manual gestures, nonhuman primate vocalizations have numerous ends, i.e., numerous functions, that are linked to social cohesion in these animals.[35] Some vocalizations are alarm calls that generate an adaptive response in the animal hearers: Vervet monkeys produce three distinct alarm calls when encountering their three main predators,

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[34] *STh* I.16.7: "The truth of enunciations is no other than the truth of the intellect. For an enunciation resides in the intellect, and in speech. As it is in the intellect, it has truth of itself but as it is in speech, it has enunciable truth as it signifies some truth of the intellect, not on account of any truth existing in the enunciation but as it is in the subject." ["Veritas enuntiabilium non est aliud quam veritas intellectus. Enuntiabile enim et est in intellectu, et est in voce. Secundum autem quod est in intellectu, habet per se veritatem. Sed secundum quod est in voce, dicitur verum enuntiabile, secundum quod significat aliquam veritatem intellectus; non propter aliquam veritatem in enuntiabili existentem sicut in subiecto."]

[35] For overviews of the scientific literature, see the following papers: A.C. Arcadi, "Language evolution: what do chimpanzees have to say?" *Curr Biol* 15 (2005): R884-R886; and Pawel Fedurek and Katie E. Slocombe, "Primate Vocal Communication: A Useful Tool for Understanding Human Speech and Language Evolution?" *Hum Biol.* 83 (2011): 153-173.

leopards, eagles, and snakes.[36] Playback experiments have demonstrated that the monkeys who hear these alarm calls respond to each in a unique adaptive manner. Other vocalizations initiate and facilitate grooming behavior: Wild Japanese macaques have unique vocal sounds that are associated with an animal's desire to groom, an animal's desire to be groomed, and an animal's acceptance of another's offer to groom.[37] And other vocalizations initiate and facilitate post-conflict resolution: Free-ranging female baboons in Botswana grunt quietly to their former opponents after conflicts, facilitating infant handling.[38] In fact, approaches between two former baboon opponents do not serve a reconciliatory function unless they are accompanied by grunts. As documented in these examples – and there are many others not listed here – primate vocalizations promote social cohesion among members of the community.

As St. Thomas had done in his own work, I propose that we can extrapolate from the instinctual experience of the dumb primates to the volitional lives of the rational ones. If nonhuman primates accomplish multiple functions that do not involve signification when they vocalize, is it not reasonable to posit that human primates do the same the same as well, though in a distinctively human way?

But how do human beings use their vocalizations as non-significations? In a series of lectures first delivered at Harvard University in 1955, John L. Austin launched the

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[36] R.M. Seyfarth et al., "Vervet monkey alarm calls: semantic communication in a free-ranging primate," *Anim. Behav.* 28 (1980): 1070-1094.

[37] Akio Mori, "Signals found in the grooming interactions of wild Japanese monkeys of the koshima troop," *Primates* 16 (1975): 107-140.

[38] See the following papers: J. B. Silk et al., "The form and function of post-conflict interactions between female baboons," *Anim. Behav.* 52 (1996): 259-268; and D.L. Cheney and R.M. Seyfarth, "Reconciliatory grunts by dominant female baboons influence victims' behaviour," *Anim. Behav.* 54 (1997): 409-418.

intellectual movement in analytic philosophy of language now called Speech Act Theory, when he proposed that verbal utterances are performed primarily with some kind of function in mind.[39] He wanted to challenge the settled view that the main function of language is to give a true or false description of past, present, or future reality. This, of course, was the view held by St. Thomas Aquinas and the majority of Western philosophers. Rather, the empirical evidence compelled Austin to conclude that there are actually numerous utterances to which one cannot ascribe any truth-value at all. When one greets another, apologizes, complains, or promises, he does not describe any preexistent state of affairs nor points to any external reality. Instead, by vocalizing a particular utterance, the speaker wants to *do* something. He wants to deploy a performative function of human speech. Language, in Austin's view, should be considered primarily as a tool that can be used to accomplish specific things, rather than to simply communicate beliefs. As I see it, in pioneering speech act theory, Austin was beginning the process of cataloging the numerous non-significatory functions of human speech, i.e., speech that does not signify a concept, that correspond to the non-significatory roles that vocalizations play in nonhuman primate communities.

In Austin's view, every utterance, every vocal act, is a speech act – Austin's student John Searle coined the term – that could be decomposed into three actions.[40] He called these actions, these meanings of the speech act, the locutionary or propositional act, the illocutionary act, and the perlocutionary act. The locutionary act is the simple and literal

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[39] J.L. Austin, *How to Do Things With Words,* ed. J.O. Urmson (Oxford: Oxford University Press, 1962). My presentation of Austin's thought that follows is indebted to this seminal text.
[40] Austin, *How to Do Things*, pp. 94-108.

meaning of what is said. "The library is closing in fifteen minutes." The utterance of these seven words by the librarian, her vocalization of the syllables involved, constitutes the propositional meaning of this speech act. The illocutionary act is the social function of what is said. "The library is closing in fifteen minutes." This utterance informs the patrons of the imminent closing of the library. However, it is also an invitation for patrons to collect their things and to pack up in anticipation of their departure. Finally, it is also a request for the remaining patrons to bring any books to the circulation desk that they may want to borrow. The perlocutionary act is the effect of what is said. "The library is closing in fifteen minutes." Here, the perlocutionary act includes all the actions of the library's patrons as they get up and move towards the circulation desk or the exit.

Building on Austin's work, John Searle has reflected upon the different ways that language can be used and classified speech acts into five different kinds of illocutionary acts: assertives, directives, commissives, expressives, and declaratives.[41] Assertives are utterances that function to manifest the speaker's beliefs. They would correspond to the declarative propositions studied extensively by Aristotle and by St. Thomas. Directives are utterances that function to get the listener to do something. They express the speaker's wish, desire, or intention that the listener perform some future action. Commissives are utterances that function to commit the speaker to do something. They express the speaker's wish, desire, or intention that he himself perform some future action. Expressives are utterances that function to manifest the speaker's feelings and attitudes about a certain state of affairs. They express the speaker's apologies, greetings,

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[41] John R. Searle, "Austin on Locutionary and Illocutionary Acts," *The Philosophical Reviews* 77 (1968): 405-424; John R. Searle, *Speech Acts* (Cambridge: Cambridge University Press, 1969).

condolences, and rejections, among others. Finally, declaratives are utterances that function to bring about a correspondence between the propositional content of the utterance and the world. Declaratives include marriage vows, consecrations, and christenings. They make what they say to be. Though taxonomies of the different kinds of speech acts have proliferated since Searle's groundbreaking effort [42], with subtle differences between the lists, the consensus is that they all reveal that human speech, like the vocalizations of the nonhuman primates, has numerous functions.

Formulating a Thomistic Theory of Speech Acts

How do we reconcile the basic truths of Speech Act Theory, especially its central insight that human speech has numerous functions, with the thought of St. Thomas? One possibility involves modifying the Angelic Doctor's hylomorphic description of speech. Recall that for St. Thomas, a speech act can be dissected into its four Aristotelian causal principles. However, he assumed that there were only two formalities under which one could speak. If one spoke words under the formality of truth – if one willed that these particular words are spoken as true words that manifested the content of one's mind – then the statement is a true one. If one spoke words under the formality of untruth – if one willed that one's words are spoken as falsehoods *contra mentem* – then the utterance is a lie, of varying degrees of viciousness depending upon how it repugnant it is to the order of charity.

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[42] K. Bach and R.M. Harnish, *Linguistic Communication and Speech Acts* (Cambridge: MIT Press, 1979); A. Cohen, "Speech Acts," in *Sociolinguistics and Language Teachings* ed. S.L. McKay and N.H. Hornberger (Cambridge: Cambridge University Press, 1996), 383-420.

In light of speech act theory and of the ethological studies of the nonhuman primates described above, however, I now propose that a human speaker can inform his words with more than the two formalities than St. Thomas had presupposed, to order them to different ends, specifying them as different kinds of speech acts.

Two examples will illustrate my proposal. A physician who asks his patient, "How are you doing today?" is informing the material utterance of these five words (the locutionary meaning) with one form, that of a directive utterance (the illocutionary meaning) in order to obtain up-to-date medical information from his patient (the perlocutionary meaning). In contrast, that same physician who asks his colleague, "How are you doing today?" as he walks by her in the hallway later that morning is informing the same material utterance of these words (again, the propositional meaning) with a different form, this time, that of an expressive utterance (another illocutionary meaning), in order to greet her and reinforce their social bond (the perlocutionary meaning). Note that each of these speech acts is distinct in kind because each has a distinct form, i.e., the illocutionary meaning. As we have already seen on several occasions in this thesis, it is the form that specifies the matter. Each speech act is ordered towards a different end. Each speech act has a different connatural function.

It is important to point out that a single speech act can be understood under different formalities because the actual words that are spoken as the material cause can be informed by numerous illocutionary meanings as distinct formal causes, in the same way that a single power of the soul can be informed by different virtues. The librarian announcing the imminent closing of the library speaks once, but her utterance can be described under different formalities, as distinct illocutionary acts, ordered towards

different ends. However, it is significant that in this case, the other illocutionary acts are dependent upon the assertive illocutionary act. The library patrons only leave and prepare to check out books because they understand that in speaking, the librarian has uttered a speech act with an assertive form that signifies her belief that the library is in fact about to close.

Finally, I would like to address the theological arguments proffered by St. Augustine and St. Thomas for the monovalent nature of human speech that were summarized earlier. Recall that these two Doctors of the Church proposed that it is fitting that human speech is ordered towards the speaker's self-revelation because it mirrors divine speech, which by its nature reveals God who is truth Himself. Instead, I would like to offer an alternative theological account for the fittingness of the polyvalent nature of human speech. As St. Thomas himself explained, it is fitting that God had created human beings as spirit-matter composites, because they stand at the nexus between the material and spiritual worlds and as such complete the great chain of being:

> Secondly, the same consideration can be reached from the orderly arrangement of things, where we cannot go from one extreme to the other except through intermediates…Now at the summit of things there is a being which is in every way simple and one, namely, God. It is not possible, then, for corporeal substance to be located immediately below God, for it is altogether composite and divisible. Instead one must posit many intermediates through which we must come down from the highest point of the divine simplicity to corporeal multiplicity. And among these intermediates, some are corporeal substances that are not united to bodies,

while others, on the contrary, are incorporeal substances that are united to

bodies.[43]

If human beings are meant to manifest characteristics of both spirit and matter in the

hierarchy of being – and I think that they are – then, in my view, it should also be fitting

that human beings manifest characteristics of both the brutes and the angels. Therefore, I

propose that it is theologically fitting that they are able to speak either using vocalizations

as the brutes do, or using speech properly so called, i.e., speech that signifies, as the angels

do, analogously speaking of course.

Defining a Lie within a Thomistic Theory of Speech Acts

  With this Thomistic theory of speech acts in hand, we can specify a lie as a

disordered assertive act. In other words, it is a disordered speech act that is informed by

an illocutionary meaning that by its very nature orders the verbal utterance towards the

exchange of truthful statements involving the signification of what is the speaker's mind.

Recall from Chapter One that it is the form that specifies the species of the matter that is

in the substance. In this way, we keep the central insight of St. Thomas that a lie is a

disordered speech act that fails to attain its proper end. However, we do so while

simultaneously modifying his theory so that it can properly acknowledge the different

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[43] *De spirit. creat.* q.5 co: "Secundo potest idem considerari ex ordine rerum, qui talis esse invenitur ut ab uno extremo ad alterum non perveniatur nisi per media/ […] Est autem in summo rerum vertice id quod est omnibus modis simplex et unum, scilicet Deus. Non igitur possibile est quod immediate sub Deo collocetur corporalis substantia, quae est omnino composita et divisibilis. Sed oportet ponere multa media per quae deveniatur a summa simplicitate divina ad corpoream multiplicitatem; quorum mediorum aliqua sunt substantiae incorporeae corporibus non unitae, aliqua vero substantiae incorporeae corporibus unitae."

connatural functions of human language, i.e., the different formalities that can inform any spoken utterances as form informs matter. Thus, the patient who tells his doctor that he feels sick in response to the question, "How are you doing today?" even when he feels well, is lying. However, the colleague who responds to a greeting of the same five-word utterance from that same physician later in the day by saying that she is well, when in fact she is sick, is not.

Within the framework of this theory for the polyvalent nature of human speech, the challenge for every speaker striving to speak truthfully will be to identify the type of speech act that is called for in a particular social and linguistic context and to respond virtuously. Sometimes, it is relatively easy to do this. For instance, a coach who exaggerates his basketball team's abilities just before their championship game in order to motivate and energize his men is not lying. He is encouraging. The social and linguistic context of his speech act reveals the formality under which the coach is speaking. Greetings and pleasantries and encouragements are often revealed by context, which are learned as the speaker is socialized, either as he grows up in a particular family living in a particular community, or as he is acculturated into a new society.

Linguistic context is also created within a particular relationship or within particular relationships. Thus, a wife who asks her husband if she is fat, after a lifetime of similar verbal exchanges, is asking him to compliment her. She is looking for an affirmation. Thus, when he tells her, as he has done on numerous past occasions, that she is not fat – despite her high BMI – he is not lying. It is not even a white lie. He is verbally grooming and stroking his mate. However, a teenage girl who asks her girlfriend if she is fat just before a night on the town is in fact asking for the truth so that she will not go

dancing in a dress that will embarrass her. If the girlfriend does not respond truthfully, if she tells her friend that she is looks thin when in fact she looks fat, she would be lying.

Finally, linguistic context can also made clear by the speaker's speech act itself. When a speaker proclaims in a law court that he "swears to tell the truth, the whole truth, and nothing but the truth so help me God", he is declaring that he intends all his utterances to be taken as assertive speech that signifies so that it can "express the conception of the heart." He excludes all other possible kinds of speech acts and all other illocutionary meanings, and as such can be held accountable to the standard of truth and falsehood.

Note that in speech acts with multiple illocutionary meanings, a lie would obtain if the speech act whose illocutionary meaning is assertive in nature, is spoken in a disordered manner. "The library is closing in fifteen minutes." Recall that this utterance is spoken under different formalities. The librarian speaks in an assertive fashion to inform her patrons of her belief that the library is closing. This is a formality ordered towards true signification. She also speaks under other formalities, primarily directive in nature, to get the remaining patrons to prepare to leave at close of business. However, if the library is not in fact closing, and the librarian spoke only because she wanted the remaining patrons to leave, then her utterance would be a lie because she disordered the assertive speech act from its proper end, which is the truth. This would obtain even if the other directive speech acts properly attained their respective ends the patrons left.

Incidentally, the last scenario described above raises the possibility that performative utterances spoken under formalities not ordered towards signification could themselves become disordered. A speaker could utter a greeting or an encouragement in

an improper manner. Austin argued that such utterances are neither true nor false but instead could be felicitous or infelicitous, according to a set of conditions, which he called felicity conditions.[44] These conditions governed the context of the utterance. Thus, a speech act that is a declaration, i.e., an utterance like a marriage vow, which functions to bring about a correspondence between the propositional content of the utterance and the world, in Austin's view, would only be felicitous if the utterance is spoken in a conventional form, the utterance is spoken by the appropriate speaker in the appropriate circumstances, the utterance is spoken without errors or interruptions, and the utterance is willingly intended as such. If any of these felicity conditions were not present, the utterance would fail in its function. It would be disordered. It is not a lie. It is an infelicity. It is striking that St. Thomas held similar views with respect to the speaking of the words of consecration during the holy mass, which is the form of the Sacrament of the Holy Eucharist.[45]

Disputed Question: Lying to an Enemy as Spycraft in a Just War

May an intelligence officer lie to his enemies during a just war? During World War II, Operation Fortitude was the codename of the military deception strategy employed by the Allied nations to protect the secret of the location of the planned Allied landings at Normandy.[46] The majority of the deception was carried out by means of false

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[44] Austin, *How to Do Things*, pp. 14-15.

[45] *STh* III.78.1-6.

[46] For information on espionage during World War II, see the following books: Anthony Cave Brown, *Bodyguard of Lies: The Extraordinary True Story Behind D-Day* (Guilford, CT: Lyons Press, 2007); Roger Hesketh, *Fortitude: The D-Day Deception Campaign*

wireless messages and German double agents who passed on false information to their Nazi handlers. Speaking falsehoods is an integral part of spycraft during war. But is it virtuous? Can it be virtuous?[47]

St. Thomas Aquinas does not directly address the question of lying during wartime espionage, but in response to the *questio,* "Whether it is lawful to lay ambushes in war?" he does say that it is unlawful to deceive an enemy even during war: "Now a man may be deceived by another's word or deed in two ways. First, through being told something false, or through the breaking of a promise, and this is always unlawful. In this way, no one should deceive the enemy, for there are certain 'rights of war and covenants that ought to be observed even among enemies'."[48] However, in the same response, St. Thomas does allow deception as long as this deception occurs by an act of omission rather than by commission:

> Second, [a man may be deceived] through what we say or do, because we
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> do not declare our purpose or meaning to him. Now we are not always
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> bound to do this, since even in sacred doctrine many things have to be
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> concealed, especially from unbelievers, lest they deride it, according to
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> Mat. 7:6: "Do not give that which is holy to the dogs." So much more
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> therefore ought the strategy of a campaign be hidden from the enemy. It is

[47] For an interesting discussion on the morality of espionage including the role of truth telling in spycraft, see Darrell Cole, "Whether Spies Too Can Be Saved?" *Journal of Religious Ethics* 36 (2008): 125-154.
[48] *STh* II-II.40.3: "Dupliciter autem aliquis potest falli ex facto vel dicto alterius uno modo, ex eo quod ei dicitur falsum, vel non servatur promissum. Et istud semper est illicitum. Et hoc modo nullus debet hostes fallere, sunt enim quaedam iura bellorum et foedera etiam inter ipsos hostes servanda."

for this reason, among others, that a soldier has to learn the art of concealing his purpose lest it come to the knowledge of his enemies, as stated in the Book on Strategy by Frontinus.[49]

From these statements, it appears that the Angelic Doctor would consider a spy's communicating false information to the enemy in order to deceive, to be an instance of lying that would be unjust, one that violates "the rights of war and covenants" that is due even to one's enemies. However, I think that one could also argue that for St. Thomas, a lie uttered as part of spycraft during a just war would not constitute a mortal sin as long as it was being uttered for the sake of the common good and in defense of the lives of many. It would be another kind of officious lie "which saves a man from death." Recall the guiding principle for St. Thomas discussed above: "[T]he greater the good intended, the more is the sin of lying diminished in gravity."

Working in the tradition of the New Natural Law Theory, Christopher O. Tollefsen appears to hold a more rigorist view than the Angelic Doctor. In an online essay, "Why Lying is Always Wrong," he has called into question "the practices of undercover work, espionage work, and other forms of journalistic, police, and governmental work that might require lying."[50] He concludes: "That we have become

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[49] Ibid.: "Alio modo potest aliquis falli ex dicto vel facto nostro, quia ei propositum aut intellectum non aperimus. Hoc autem semper facere non tenemur, quia etiam in doctrina sacra multa sunt occultanda, maxime infidelibus, ne irrideant, secundum illud Matth. VII, nolite sanctum dare canibus. Unde multo magis ea quae ad impugnandum inimicos paramus sunt eis occultanda. Unde inter cetera documenta rei militaris hoc praecipue ponitur de occultandis consiliis ne ad hostes perveniant; ut patet in libro stratagematum Frontini."

[50] Christopher O. Tollefsen, "Why Lying is Always Wrong," February 14, 2011. Available at http://www.thepublicdiscourse.com/2011/02/2547/. Last accessed on October 7, 2013. For a more extensive discussion of Tollefsen's views, see his *Lying and Christian Ethics*

conformed in our social practice to lies as an essential part of the defense of the realm, and for the protection of citizens, just as in our personal lives, is a fact…But this participation is neither an inevitability, nor, in my view, a reflection of what is genuinely demanded by truth and love."[51] From these statements, it appears that for Tollefsen, lying done during war-time espionage would not only be sinful but gravely sinful because it violates the order not only of truth but also of charity. As such, in the language of St. Thomas, it would be a mortal sin that is uttered not only *contra mentem* but also *contra caritatem.*

But what if we acknowledge the polyvalent nature of speech that is shaped by the social context of the speech act? Would a Thomistic speech act theory alter the classic analysis proffered by the Angelic Doctor? It is striking that accounts of wartime espionage and counter-espionage, both historical and fictional, reveal that both sides of the exchange, for instance the Allied and German intelligence forces during World War II, assume that the enemy is out to deceive them.[52] The goal of their exchange is to deceive and not to be deceived. It is not to understand or to be understood. In other words, both sides implicitly agree that their speech acts are not meant to signify what is in the intellect of the speaker. They are not meant to reveal truth information. Rather they are directive.

(Cambridge: Cambridge University Press, 2014). It is noteworthy that Tollefsen does affirm the existence of different kinds of speech acts where only assertive speech acts can be true or false. However, it is likely that he would disagree with my proposal that spies are not making assertions properly understood when engaged in spycraft because of the linguistic context in which they are speaking. For discussion, see his *Lying and Christian Ethics*, pp. 17-30.

[51] Ibid.

[52] For a fictitious account that reveals the intricacies of spycraft during war, in this case during Operation Fortitude in World War II, see Daniel Silva, *The Unlikely Spy* (New York: Penguin Putnam, 1995).

They are directed towards deceit. Both sides are expecting untruths from the other. Both sides are also trying to figure out ways to distinguish truth and untruth. Thus the context of the communication that occurs between intelligence forces from opposing sides during a war is akin to the classic bluffing game of *Balderdash,* where opponents try to deceive each other by writing false but convincing definitions for uncommon English words.[53] During gameplay, everyone expects deception from the other team. At the same time, everyone is trying to figure out how not to be deceived.

Though St. Thomas may think that players speaking untruths during a game of *Balderdash* are lying, albeit venially, because they are intentionally speaking falsehoods as untruths *contra mentem*, precisely to deceive, I would submit that a Thomist aware of speech act theory would beg to differ. Here, the *Balderdash* players are not speaking words under the formality of a speech act ordered towards the truthful revelation of one's mind. Their words do not involve true or false signification but non-signification. The players are speaking under the formality of a directive speech act ordered towards winning the bluffing game. This is a distinct kind of performative speech act that is made clear by the context of the vocal exchange and its social context, which is the game itself. By definition, these speech acts cannot be true or false. Instead they could be felicitous or infelicitous depending upon whether or not they are effective at deceiving the other team to achieve victory. By definition, therefore, *Balderdash* speakers cannot lie as long as they are playing the game. What is important is that both sides of the exchange are aware of

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[53] For a description of the game of Balderdash, see the following Wikipedia entry: http://en.wikipedia.org/wiki/Balderdash. Last accessed on October 8, 2013.

the context in which they are speaking. It is the context that helps the speakers recognize the formalities under which they are expected to speak to each other.

In the same way, I propose that intelligence officers trying to deceive the enemy cannot lie as long as they are speaking *qua* spies who are trying to promote the common good by winning a just war and protecting the social order. Both sides acknowledge that they are not seeking truth. Both sides acknowledge that they are speaking to deceive. Both sides therefore are incapable of speaking lies, properly so called. In an analogous sense, as regards to speech acts, spycraft during a just war is like gamecraft during a bluffing game. Notice that this argument also applies outside the context of a just war as long as both sides are aware that they are playing the "game" of espionage.

Finally, I propose that this analysis can be extended even further. It also applies to the context of undercover stings where undercover law enforcement officers and federal agents infiltrate an organization involved in illicit activities. Here, when the drug lord and her accomplices establish their network of illicit activities and engage in behavior that undermines the common good, they enter into a cat and mouse game with the authorities who they are trying to deceive so that they will not be apprehended and incarcerated. Once again, they are seeking to deceive and not to be deceived. They have entered into a bluffing game. Once again, I propose that officers of the state trying to deceive the members of these illicit organizations who are trying to deceive them cannot lie as long as they are speaking *qua* agents who are trying to promote the common good that is the proper ordering of the commonweal. Once again, as regards to speech acts, undercover

operations during a drug bust can be compared to the gamecraft that occurs during a bluffing game, in this case, the party game called Mafia.[54]

Disputed Question: Lying to a Nazi to Save Jews

May a conscientious Dutch citizen lie to protect the Jews that she is hiding from the Nazis? This of course is one of the classic questions in casuistry, a variant of the question of whether one may lie to a murderer who is seeking a potential victim.[55] The clear weight of the Christian tradition lies on the opinion that one must never lie, even to save a life, though there is a second minority tradition, largely accepted in the Eastern Church, that suggests that lying may sometimes be justified, particularly if one is lying to an enemy who has no right to the truth, in order to protect the innocent from harm.[56] The *Catechism of the Catholic Church* reflects the majority tradition when it teaches that, "a lie consists in speaking a falsehood with the intention of deceiving," and that "by its very nature, lying is to be condemned."[57]

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[54] http://en.wikipedia.org/wiki/Mafia_(party_game). Last accessed on January 22, 2015.
[55] For an historical account of one instance of this classic case in casuistry, see Corrie Ten Boom, *The Hiding Place* (New York: Bantam Books, 1974).
[56] Boniface Ramsey, O.P. "Two Traditions on Lying and Deception in the Ancient Church," *The Thomist* 49 (1985): 504-533.
[57] *Catechism of the Catholic Church*, nos. 2482, 2485. As Christopher Kaczor has proposed, however, it can be argued that the final authoritative edition of the *Catechism* has taken the more probable opinion in the tradition – the one that a greater number of faithful theologians hold but one that is not settled doctrine – rather than ruling out the secondary minority tradition. For discussion, see his, "Can it be Morally Permissible to Assert a Falsehood in Service of a Good Cause," *American Catholic Philosophical Quarterly* 86 (2012): 97-109. Moreover, as Fr. Michael Sherwin, O.P., pointed out to me in a personal communication, the final authoritative edition of the *Catechism* did not alter two crucial paragraphs, nos. 2488 and 2489, which, amongst other things, affirm the following: "The *right of communication* of the truth is not unconditional. Everyone must conform his life to the Gospel precept of fraternal love. This requires us in concrete

As we saw above, St. Thomas is explicit about the absolute prohibition against lying: "Now it is not lawful to make use of anything inordinate in order to ward off injury or defects from another just as it is not lawful to steal in order to give alms (except perhaps in a case of necessity when all things are common). Therefore it is not lawful to tell a lie in order to deliver another from any danger whatsoever."[58] Thus, the Dutch citizen may not lie to the Nazi though, as St. Thomas points out, "it is lawful to hide the truth prudently, by concealing it."[59] Germain Grisez takes this one step further by proposing that the Christian should not only remain silent but explain her silence: "[T]reating as neighbors both the potential victim and the enemy would require not giving the information and, usually, explaining why: 'I will not answer your question and help you do wrong; instead, for your soul's sake, I ask you to repent of your wicked intent'."[60]

Three responses have been recently proposed to this disputed question by scholars working with the Thomistic tradition. As a faithful interpreter of St. Thomas, Lawrence Dewan, O.P., proposes that the Thomistic distinction between lies that are mortal sins and those that are venial sins, will allow him to say the following:

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situations to judge whether or not it is appropriate to reveal the truth to someone who asks for it" (no. 2488). This suggests that the *Catechism* still leaves open the possibility that one may refrain from speaking the truth to someone who has no right to it.

[58] *STh* II-II.110.3 ad 4: "Non licet autem aliqua illicita inordinatione uti ad impediendum nocumenta et defectus aliorum, sicut non licet furari ad hoc quod homo eleemosynam faciat (nisi forte in casu necessitatis, in quo omnia sunt communia). Et ideo non est licitum mendacium dicere ad hoc quod aliquis alium a quocumque periculo liberet."

[59] Ibid.: "Licet tamen veritatem occultare prudenter sub aliqua dissimulatione."

[60] Germain Grisez, *The Way of the Lord: Living a Christian Life*, Volume 2 (Quincy, IL: Franciscan Press, 1993), p. 407.

If we apply this solution to our modern question about lying to the
Gestapo to save the Jewish family we are hiding, the answer of Thomas is
that we should not tell a lie, even a harmless lie. To do so would be a venial
sin, and one should never commit a venial sin, no matter what good might
come of it. However, given the human condition, most good people, most
saints (we might even say), will tell the lie, that is, will commit the venial
sin. For their charity, which consists in their good will toward their
neighbors, God will reward them with eternal life.[61]

For Fr. Dewan, lies to save the life of another is sinful, but only sinful in an analogous
sense. It would not imperil the speaker's eternal destiny.

Next, Alexander Pruss argues that the principle that one must always speak in his
hearer's language when one is communicating with him means that the conscientious
Dutch citizen who tells the Nazi officer, "There are no Jews in my house," is actually
speaking the truth, because an affirmation in his language this would have meant, "Yes,
there are some sub-human, cold-hearted, shameless, calculating traffickers in vices in my
house," and this is clearly not true for her.[62] In response to Pruss, Stephen Jensen observes
that words have an inherent meaning, the intensive meaning or *res significata* to which
the word refers, and extensive meanings that add to the intensive meaning.[63] According to
Jensen, even if Pruss's analysis of Nazi language is accurate, the Nazi definition of Jews as

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[61] Lawrence Dewan, O.P., "St. Thomas, Lying, and Venial Sin," *The Thomist* 61 (1997):
279-300; p. 292.
[62] Alexander Pruss, "Lying and Speaking Your Interlocutor's Language," *The Thomist* 63
(1999): 439-453.
[63] Steven J. Jensen, *Good and Evil Actions* (Washington, D.C.: The Catholic University of
America Press, 2010), p. 290 [Footnote 10].

meaning, "sub-human, cold-hearted, shameless, calculating traffickers in vices," would only involve its extensive meaning. The Nazi meaning would still have to retain the intensive meaning that signifies a member of a particular religious or ethnic group to ensure that some communication could occur between the Dutch citizen and the Nazi. Thus, her response would still constitute a lie.

Third, Benedict Guevin, O.S.B., building on Pruss's framework described above, proposes that the Dutch citizen is incapable of lying to the Nazi because their verbal exchange does not constitute truthful human communication because it does not foster the mutual trust needed to live in society.[64] In response to Fr. Guevin, Jensen notes that if Fr. Guevin is correct, then under his standard, politicians could never lie since it is clear to him that their communication with their constituents never fosters the mutual trust needed to live in society.[65] Jensen also quotes St. Thomas to point out that the Angelic Doctor was opposed to lies even in times of war, probably the context *par excellence* where exchanges do not constitute truthful human communication because it does not foster mutual trust.

But again, what if we acknowledge the polyvalent nature of human speech that is shaped by the linguistic and social context of the speech act? Moralists who have tackled this disputed question have long assumed that the Nazi soldier asking the Dutch citizen about hidden Jews is asking her a simple question not unlike the Boston police officers who went door to door in Watertown, MA, searching for the Boston Marathon bomber. They see the context of this disputed question as an ordinary conversation between an

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[64] Benedict M. Guevin, O.S.B., "When a Lie is Not a Lie: The Importance of Ethical Context," *The Thomist* 66 (2002): 267-274.
[65] Jensen, *Good and Evil Actions,* p. 290.

official of the commonweal and a citizen of the same. I disagree. Eyewitness testimony indicates that the Gestapo customarily used terror and brute force to control civilian populations both at home and abroad.[66] They assumed that every citizen was, at a minimum, an untrustworthy individual who was working to oppose them. They expected that they were speaking to someone who was trying to deceive them, hence the need for the accompanying display of force and aggression. As such, in my view, the conversation between the Gestapo officer and the Dutch citizen is comparable to an exchange between two players in a game of bluff where one is trying to bluff the other, and the other is trying to see through that bluff. Once again, it is a context where, by definition, the speakers cannot lie, because it is a context where they are not expected to speak the truth. In a sense, my view is comparable to the one proposed by Fr. Guevin when he describes the exchange between Nazi and citizen as a verbal exchange that does not constitute truthful human communication. However, in contrast to Fr. Guevin, my account provides a conceptual framework for distinguishing the Gestapo-Citizen exchange from the Politician-constituent example discussed by Jensen. I disagree with Fr. Guevin who has proposed that the former conversation does not constitute truthful human communication, because is does not foster the mutual trust needed to live in society. This is a consequentialist argument, if what he means is that the conversation can be justified by the social outcome that it does or does not promote in the long run.[67]

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[66] Jacques Delarue, *The Gestapo: A History of Horror* (Chicago: Frontline Books, 2008).
[67] In a personal communication, Fr. Guevin has clarified his position. He explained that he believes that speaking falsehoods within the context of a Gestapo-Citizen conversation does not constitute lying because speaking falsehoods in this context does not go against the virtue of justice, but on a deeper level maintains it. Fr. Benedict Guevin, O.S.B., Email message to author, November 12, 2013.

Rather, in my view, the Gestapo-Citizen conversation does not constitute truthful human communication because of the specific social context involved. Here, both interlocutors are aware that they are not speaking under formalities that are ordered towards truth. This is why the latter conversation, the conversation between politician and constituent is different. Here, at least the second member of the speaking dyad, the constituent, expects the first member of that vocal exchange to speak the truth, because constituents expect that their elected officials will speak the truth to them, especially in a society that strives to be a representative democracy. No such expectations existed between the Gestapo and the non-Nazi citizens of Germany or of the countries they occupied.

Disputed Question: Lying to Planned Parenthood to Unmask Evil

May a pro-life activist lie to a staff member of Planned Parenthood to uncover the evil practices of the organization? Several years ago, the activists at Live Action, a media movement dedicated to ending abortion and building a culture of life, released several undercover videos that showed Planned Parenthood counselors advising their clients either to procure clandestine abortions and STD testing for underage sex workers or to procure sex-selective abortions.[68] These videos were taken by Live Action investigators posing as pimps and pregnant mothers seeking abortions. Though these videos triggered a political effort to defund Planned Parenthood clinics around the United States, and as such, are laudable, they also generated much controversy among Catholic ethicists and

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[68] For examples of these videos, news releases, and commentary, see the LiveAction website: http://www.liveaction.org/. Last accessed on October 2, 2013.

bloggers, who disagreed about the morality of lying to deceive an employee of an abortion clinic in order to expose the corruption of Planned Parenthood, Inc.[69] On one side, there were moralists who condemned the actions of Live Action as violations of the natural law prohibition never to lie.[70] Not surprisingly, the Catholic moralists opposed to all forms of deception appealed to the arguments made by St. Thomas Aquinas, which we have already discussed above. On the other side, there were ethicists who were willing to excuse Live Action's deception on grounds that it could be justified because of the great good that it had brought about.[71]

Janet Smith has made an interesting argument to justify Live Action's methods. At first glance, it is superficially similar to the one presented here because she proposes that human language has numerous purposes: "Now, language must serve many other purposes besides the conveyance of the concepts on our minds. We need to correct, console, encourage, and deter one another. These actions need not involve falsehoods, but they are a use of language that differs from the fundamental purpose of

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[69] For overviews of the online debate, see the following: Phil Lawler, "Is it ever justifiable to lie?" March 16, 2011. http://www.catholicculture.org/commentary/otn.cfm?id=785; and, Thomas Peters, "LiveAction, Lies & the Truth About Abortion," http://www.catholicvote.org/liveaction-lies-and-the-truth-about-abortion/.

[70] For representative views, see the following: Christopher O. Tollefsen, "Truth, Love, and Live Action," February 9, 2011. http://www.thepublicdiscourse.com/2011/02/2529/; Christopher O. Tollefsen, "Why Lying is Always Wrong," February 14, 2011. http://www.thepublicdiscourse.com /2011/02/2547/; and Robert George, "Life and Truth," February 15, 2011. http://mirrorofjustice.blogs.com/mirrorofjustice/2011/02/the-on-line-journal-public-discourse-under-the-brilliant-editorship-of-ryan-anderson-has-become-a-key-site-for-people-inter.html.

[71] For representative views, see the following: Christopher Kaczor, "In Defense of Live Action," February 11, 2011. http://www.thepublicdiscourse.com/2011/02/2538/; and Jim Russell, "Live Action, Lying, and the Catechism: Why a Good Catholic Can Support an Undercover Apostolate," May 13, 2013. http://www.creativeminorityreport.com/2013/05/live-action-lying-and-catechism-why.html.

communicating truth."[72] However, Smith does not argue that the polyvalent nature of human language is connatural to the human primate as I have done above. Rather, she proposes that the multifunctional nature of human speech is a post-lapsarian reality that arises because of fallen and sin-prone human nature: "I believe that after the Fall, as is the case with words of consolation and encouragement, certain falsehoods uttered in certain circumstances can be fitting and morally licit uses of language."[73] She then concludes: "But just as destruction of life and property is now sometimes necessary and thus moral for the protection of what is good, false signification is sometimes necessary for the protection of life, property, and even truth itself. Uttering a falsehood to deceive a Nazi in order to save a Jew seems to be just such a case."[74] According to Smith, false signification, in this case the false signification of Live Action's undercover investigators, can be justified by the good that it can bring about, in this case the exposition of the evil practices of Planned Parenthood.

Not surprisingly, Smith has been criticized – rightly, in my view – by Thomists who have argued that she has succumbed to a consequentialist morality by proposing that the ends can sometimes justify the means. As Thomas Petri, O.P., and Michael Wahl have noted, once one presupposes the veracity of the Thomistic account of speech, truth, and falsehood, one must also accept that "lying is not inherently ordered to saving a life."[75] Therefore, "the action of lying is evil in its genus, and, thus, is an immoral means to saving life. Just as in the case of stealing to give alms, one sins and does that which is

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[72] Smith, "Fig Leaves and Falsehoods," 47.
[73] Ibid.
[74] Ibid., 48.
[75] Thomas Petri, O.P., and Michael Wahl, "Live Action and Planned Parenthood: A New Test Case for Lying," *Nova et vetera* 10 (2012): 437-462; p. 449.

immoral in order to do good."[76] This objection is a valid one because Smith is unable to move beyond the dichotomy between true and false signification. If speech has only one function, and that is to signify – an assumption that Smith implicit accepts by speaking only about true and false signification – then to justify false signification by appealing to the good that it bring about, is to fall into the quicksand of consequentialism.

But what if we acknowledge the polyvalent nature of speech as a reality that is connatural to human nature, both before and after original sin? This alternative would avoid the consequentialist objection. First, it would affirm that human speech involves more than just two kinds of speech involving true or false signification. A third kind also involves non-signification. Second, it would affirm that speech acts of the third kind can be ordered towards other ends that in themselves could be then be ordered towards the saving of life without distorting the natural teleology of human speech. Therefore, as I argued above, the non-significatory speech uttered in the context of a bluffing game can be ordered towards deceit of one's opponents without distorting its teleological ordering. As such, it can be justified not by appealing to good ends to justify evil means by affirming that this speech does not constitute evil, i.e., disordered, means in itself.

Returning to Live Action's undercover operations, can they be justified? One possible response is to propose that individuals, and especially organizations, who commit evil acts more generally put themselves into a similar social context for their speech acts as members of criminal organizations seeking to mislead the police do, because sin necessarily impels sinners to want to conceal themselves and their evil acts from those who are good. The biblical narrative of the Fall reveals this dynamic clearly:

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[76] Ibid., 450.

After they ate of the fruit of the tree of the knowledge of good and evil, Adam and Eve hid themselves from the LORD God among the trees of the garden (cf. Gen 3:8-10). They wanted to conceal themselves and their sin.

Therefore, one could say that Planned Parenthood and its agents, by promoting the evil practice of abortion, had placed themselves into a social context where they were actively trying to deceive individuals of virtue in order to conceal the evil that they were doing, the evil that once uncovered, triggered the Congressional investigation into their activities. Companies that exploit the poor or pollute the environment do the same. They have put themselves into the context of a social game of bluff that pitted agents of vice who were trying to conceal evil against agents of virtue who were trying to uncover it, for the sake of the common good. One could then propose that this is a linguistic context where, by definition, the speakers cannot lie, because it is a linguistic context where they are not expected to speak the truth. Rather they are speaking either to conceal or to reveal vice. If this were true, then Live Action's deceptive speech could be justified as falsehoods that are not lies.

However, this argument is a weak one. Unlike spying, there is no game of bluff here where the employees of Planned Parenthood and the investigators of Live Action know the rules of the game. It is not even clear if the employees of Planned Parenthood even realize the evil of their actions given their rhetoric of how access to abortion promotes and protects the reproductive rights of women. Rather, they are proud of their work and do all that they can to promote it. Thus, it would seem that the conditions that

justify espionage do not apply here.[77] And yet, why do good and faithful persons "sense" that "lying" to Planned Parenthood is justifiable? It is the same instinct at work when good and faithful people "sense" that Jean Valjean did not "steal" the bread in Victor Hugo's *Les Misérables.*

Objection: Speaking Falsehoods Necessarily Corrupts Moral Character

One possible objection to the account of human speech acts proposed here is that there are seemingly realistic narratives – John le Carré's *The Spy Who Came in from the Cold* comes especially to mind – that suggest that the duplicitous nature of espionage corrupts the moral character of spies.[78] For the objector, this would be empirical evidence that the speaking of falsehoods, by its very nature, hinders the moral development of the speaker and as such can never be justified. Petri and Wahl have even argued, "as necessary as the Central Intelligence Agency or National Security Agency may be, we would not recommend a person who is seeking to grow in virtue and holiness to join either of them."[79]

In response, in my view, the vocation of a spy has to be understood precisely as a vocation. As such, it is profession that is not for everyone, but only for those individuals

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[77] However, let me raise a conjecture: In a society that is *structurally* blind to and incapable of properly uprooting evil, can citizens of virtue assume the role of police who are deputed by society to eradicate evil, but as vigilantes? If so, then these citizens, like the police and other undercover investigators, would be immune from claims that they are engaged in lying to uncover vice.

[78] A similar moral damage argument has been made to criticize the practice of clandestine operations involved in intelligence collection by Drexel Godfrey: "Ethics and Intelligence," *Foreign Affairs* 56 (1978): 624-642. For a insightful response to Godfrey, see John P. Langan, S.J., "Moral Damage and the Justification of Intelligence Collection from Human Sources," *Studies in Intelligence* 25 (1981): 57-64.

[79] Petri and Wahl, "Live Action," p. 461.

who are called to that life. These are those individuals who have been given a particular set of personal traits that would allow them to grow in virtue and in holiness in a life of espionage. For example, Kevin Dutton has suggested that the best spies are individuals with mild psychopathic traits.[80] It is not surprising that there are heroic narratives written by former CIA operatives that can serve as counter-examples to the stories that paint a dark moral portrait of the spy.[81] There is also the evidence from other professions that routinely involve the speaking of falsehoods, especially the acting profession, that suggests that the practice is not inherently damaging to the moral character of many of its practitioners. Would Petri and Wahl discourage all Christians from the dramatic arts?

It is clear that spies bear an unusually heavy psychological burden because of their profession, which could lead to moral damage if that burden is not carried virtuously. But this is not unique to espionage. Surgeons, grief counselors, first responders, and priests, among others, bear similar burdens because of their work. Indeed, in my view, moral theologians especially those working within the Catholic tradition have a pastoral responsibility to help their brothers and sisters to carry their burdens well. And for our brothers and sisters working in counter-intelligence in defense of the common good, articulating why espionage is not a sin, not even a venial sin, would be one way of doing this.

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[80] See his book, *The Wisdom of Psychopaths: What Saints, Spies, and Serial Killers Can Teach Us About Success* (New York: Scientific American, 2012).
[81] Antonio J. Mendez, *The Master of Disguise: My Secret Life in the CIA* (New York: William Morrow and Company, 1999).

<u>Conclusion</u>

This chapter has illustrated how an understanding of hylomorphic theory and its analogous use in St. Thomas's theory of speech acts allows us to update his moral theology so that it can incorporate contemporary insights from science and philosophy. Recall, however, that analogical predication relates all secondary predications to a prime analogate, in the case of matter-form language, to the realities of prime matter and substantial form. But are these realities *really* real? If they are not real – if they do not exist – as many philosophers have argued for the past four centuries, then the analogous use of matter-form terminology in Thomistic moral theology remains metaphorical at best and false at worst. In the next chapter, I will identify the most significant scientific criticisms of hylomorphic theory put forward by the early modern scientist-philosophers who were instrumental in supplanting hylomorphism with mechanism, triggering the scientific revolution. I will then respond to their objections by bringing Thomistic hylomorphic theory into conversation with modern science to show that the use of matter-form terminology in moral theology is neither unintelligible nor antiquated, especially in light of recent developments in systems biology.

CHAPTER SIX

Rehabilitating Classical Hylomorphism with a Systems Biology

<u>Introduction</u>

How are we to talk about a "form," "nature," or the "disposition of matter" in the 21st century? How are we to translate the classical hylomorphism of Aristotle and of St. Thomas Aquinas that we have been discussing throughout this thesis into a modern idiom? As we will discuss in detail in this chapter, the alleged refutation of hylomorphic theory during the early modern period has undermined the legitimacy of matter-form language, even used analogically. In my view, therefore, this rejection of classical matter-form theory among philosophers and scientists needs to be reversed to reopen a space among theologians for the analogical use of hylomorphic terminology in contemporary *sacra doctrina*.

In this chapter, I describe a theoretical framework that seeks to rehabilitate a classical Thomistic account of matter and form within the realm of contemporary biology. However, before I do this, I think that it is important to understand and to respond to the scientific objections to hylomorphism that were raised by the philosopher-scientists of the early modern period, especially since these have been overlooked in the most part by recent authors working to justify matter-form language from within the analytic tradition.[1] Therefore, I begin with a historical sketch that describes the

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[1] For representative works from this tradition published in the past decade, see Edward Feser, *Philosophy of Mind: A Beginner's Guide* (Oxford: Oneworld Publications, 2005); Mark Johnston, "Hylomorphism" *Journal of Philosophy* 103 (2006): 652-698; David Oderberg, *Real Essentialism* (New York: Routledge, 2007); Kathrin Koslicki, *The Structure*

widespread replacement of a hylomorphic philosophy with a mechanical one in seventeenth century Europe. I want to examine the scientific reasons for the mechanist's rejection of matter-form language by focusing on representative arguments from René Descartes, Robert Boyle, and John Locke. Why did these philosophers, whose lives spanned the seventeenth century, think that the rejection of classical hylomorphism was necessary for the scientific revolution that they helped to trigger?

I then move to an overview of systems biology, an emerging field of scientific investigation, which in my view is inherently open to a hylomorphic account of creation because of its own hylomorphic structure. I close the chapter with an account of the human organism that is not only consonant both to classical hylomorphism and contemporary science but is also corrective of the scientific objections of the early modern philosophers. This systems account is a conceptual framework that validates the hylomorphic analysis in moral theology that has been the focus of the earlier chapters of this thesis.

Marginalizing Substantial Forms with a Mechanical Biology

Before moving to the objections to classical hylomorphism raised by the philosophers of the early modern period, I think that it is important to contextualize them within the philosophical currents of their day, specifically within the debates

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of Material Objects (Oxford: Oxford University Press, 2010); William Jaworski, *Philosophy of Mind: A Comprehensive Introduction* (New York: Wiley-Blackwell, 2011), Patrick Toner, "Hylemorphic animalism," *Philosophical Studies* 155 (2011): 65-81; Michael Rea, "Hylomorphism reconditioned," *Philosophical Perspectives* 25 (2011): 341-358; and James D. Madden, *Matter, and Nature: A Thomistic Proposal for the Philosophy of Mind* (Washington, D.C.: Catholic University of America Press, 2013).

surrounding the nature of living substances.[2] For my purposes in this thesis, these debates

well illustrate the marginalization of substantial forms that occurred when the dominant

Aristotelian philosophies of the seventeenth century were replaced by their rival

mechanical alternatives.[3]

Turning to philosophical history then, what is a living organism? For Aristotle

and his intellectual heirs, St. Thomas included, a living organism is the paradigmatic

example of a substance.[4] As we saw in the first chapter, an organism is a substance with

an internal principle of activity – its substantial form, which for living things is called its

soul – that is responsible for its unity, its integrity, and its species-specific activity. Indeed,

as Aristotle explains in his *On the Parts of Animals*, the study of animal nature is the study

of animal soul: "So in this way too it will be requisite for the person studying nature to

[2] As numerous scholars have pointed out, there were numerous Aristotelianisms and therefore, numerous hylomorphisms during the early modern period. However, th differences among these philosophies were not as great as the shared similarities that distinguished them from their mechanist rivals. For an insightful discussion of the different hylomorphisms that existed during the early modern period, see Gideon Manning, "The History of 'Hylomorhism,'" *Journal of the History of Ideas* 74 (2013): 173-187; and Christoph Lüthy and William R. Newman, "'Matter' and 'Form': By Way of Preface," *Early Science and Medicine* 2 (1997): 215-226. Also see, Christoph Lüthy, Cees Leijenhorst, and Johannes M.M.H. Thijssen, "The Tradition of Aristotelian Natural Philosophy: Two Theses and Seventeen Answers," in *The Dynamics of Aristotelian Natural Philosophy from Antiquity to the Seventeenth Century*, ed. Cees Leijenhorst, Christoph Lüthy, and Johannes M.M.H. Thijssen (Leiden: Brill, 2002), pp. 1-29.

[3] Parallel debates were underway in what today we would call the field of chemistry where early modern chymists were challenging the Aristotelian hylomorphisms and corpuscularisms of the late medieval alchemists. For a fascinating narrative of this controversy, see William R. Newman, *Atoms and Alchemy: Chymistry and the Experimental Origins of the Scientific Revolution* (Chicago: University of Chicago Press, 2006).

[4] For an overview of Aristotle's philosophy of biology and references to the primary literature, see Fernando Moya, "Epistemology of Living Organisms in Aristotle's Philosophy," *Theory Biosci* 119 (2000): 318-333; and L.A. Kosman, "Animals and other beings in Aristotle," in *Philosophical Issues in Aristotle's Biology,* ed. A. Gotthelf and J.G. Lennox (Cambridge: Cambridge University Press, 1987), pp. 360-391.

speak about soul more than the matter, inasmuch as it is more that the matter is nature because of soul than the reverse."[5]

Importantly, the Aristotelians distinguished organisms from artifacts, because unlike the former, the latter only have an accidental unity, an accidental integrity, and an "accidental" activity that are imposed on them from without.[6] A wooden house built by Habitat for Humanity in New Orleans is only a house and can only function as a house because of the architect and volunteer builders who imposed a form on the wooden planks that they had put up in the shape of a house. In this way, a house is unlike a giraffe, which has its form from within. Though it is accurate to say that there was no single consensus view on what constituted an orthodox reading of Aristotle's philosophy of nature in the early modern period, most of the scholastics still held some variant of this theory of matter.[7]

During the scientific revolution of the early modern period, this Aristotelian worldview was replaced with a mechanical alternative, which, among other things,

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[5] Aristotle, *Parts of Animals I-IV,* Trans. James G. Lennox (Oxford: Oxford University Press, 2001), p. 5. [641a 28-31]

[6] Cf. Aristotle, *Physics* II.1.192b9-19, where the Philosopher makes the distinction between natural substances and artifacts because the former have an innate principle of movement whereas the latter have no such principle. For a fascinating discussion of the dichotomy between natural and artificial products as it was understood in the Middle Ages, see William R. Newman, *Promethean Ambitions* (Chicago: The University of Chicago Press, 2004), pp. 34-114.

[7] For an overview of the philosophies of nature at the dawn of modernity, see R. Ariew and M. Grene, "The Cartesian Destiny of Form and Matter," in *Descartes and the Last Scholastics*, ed. R. Ariew (Ithaca, NY: Cornell University Press, 1999), pp. 77-96; and Robert Pasnau, "Form, Substance, and Mechanism," *The Philosophical Review* 113 (2004): 31-88.

collapsed the distinction between living organisms and inert artifacts.[8] For example, the French philosopher and mathematician, René Descartes (1596-1650) wrote: "I know that you will say that the form of the clock is only an artificial form, while the form of the sun is natural and substantial; but I reply that this distinction concerns only the cause of these forms, and not at all their nature."[9] Indeed, he is famous for comparing the human organism to a machine:

> In the same way, if I should consider the body of a man as a kind of machine equipped with and made up of bones, nerves, muscles, veins, blood and skin in such a way that, even if there were no mind in it, it would still perform all the same movements as it now does in those cases where movements as it now does in those cases where movement is not under the control of the will or, consequently, of the mind.[10]

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[8] For different perspectives on how the Aristotelian worldview was replaced by its mechanical counterpart, see Helen Hattab, "The Mechanical Philosophy," in *The Oxford Handbook of Philosophy in Early Modern Europe*, ed. Desmond M. Clarke and Catherine Wilson (Oxford: Oxford University Press, 2011), pp. 71-95; Cees Leijenhorst, *The Mechanisation of Aristotelianism: The Late Aristotelian Setting of Thomas Hobbes' Natural Philosophy* (Leiden: Brill, 2002); and William Eaton, *Boyle on Fire: The Mechanical Revolution in Scientific Explanation* (London: Continuum, 2005). Also see the essays in Sophie Roux and Dan Garber, eds., *The Mechanization of Natural Philosophy* (Dordrecht: Springer, 2013).

[9] René Descartes, *The Philosophical Writings of Descartes, Volume III The Correspondence*, Trans. John Cottingham, Robert Stoothoff, Dugald Murdoch, and Anthony Kenny (Cambridge: Cambridge University Press, 1991), p. 122.

[10] René Descartes, *The Philosophical Writings of Descartes, Volume II.* Trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch (Cambridge: Cambridge University Press, 1984), p. 58. For a fascinating and comprehensive discussion of this Cartesian analogy and the conceptual transformation that it heralded, see Dennis Des Chene, *Spirits and Clocks: Machine and Organism in Descartes* (Ithaca, NY: Cornell University Press, 2000). Also see Gideon Manning, "Descartes' Healthy Machines and the Human Exception," in *The Mechanization of Natural Philosophy* ed. Sophie Roux and Dan Garber (Dordrecht: Springer, 2013), pp. 237-262.

As we will see shortly, Descartes used this analogy between an organism and a clock to argue against the existence of substantial forms.

Within a generation, Robert Boyle (1627-1691), considered the father of modern chemistry, compared the bodies of animals to engines:

> I think also further that the wise Author of things did, by establishing the laws of motion among bodies, and by guiding the first motions of the small parts of matter, bring them to convene after the manner requisite to compose the world, and especially did contrive those curious and elaborate engines, the bodies of living creatures, endowing most of them with a power of propagating their species.[11]

Or again, referring to the bodies of the microscopic mite, Boyle will write in his essay on "atomicall" philosophy: "Now though a mite seem but a moving atom, and unless there be diverse together is not easily discerned by the unassisted eye yet in an excellent microscope I have, I have several times both discovered my self and shown to others not only the several limbs of this little animal but the very hair growing upon his legs, now let us but consider what a multitude of atoms must concur to constitute the several parts external and internal necessary to make out this little engine."[12]

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[11] Robert Boyle, "On the Origin of Forms and Qualities," in *Selected Philosophical Papers of Robert Boyle,* ed. M.A. Stewart (Manchester: Manchester University Press, 1979), 1-96; p. 19.

[12] Robert Boyle, "Essay the Of the Atomicall Philosophy," in *The Works of Robert Boyle: Volume 13, Unpublished Writings 1645-c.1670.,* ed. Michael Hunter and Edward B. Davis (London: Pickering & Chatto, 2000), 227-235; p. 229. I have revised the text so that it will conform to contemporary English usage and spelling. The original text is as follows: "Now tho a Mit seeme but a moving Atome & unles there be diverse together is not easily discern'd by the unassisted Eye yet in an excellent Microscope I have, I have severall times both discovered my selfe and showne to others not only the severall limbs of this little

In 1690, the English philosopher and physician, John Locke (1632-1704) would make an analogy between a man and a clock suggesting that knowing the real essence of a man would be like knowing the springs, wheels, and other inner workings of the time keeper:

> [W]e should have a quite other *idea* of his *essence* than what now is contained in our definition of that *species*, be it what it will: and our idea of any individual man would be as far different from what it is now, as is his who knows all the springs and wheels and other contrivances within of the famous clock at *Strasburg*, from that which a gazing countryman has of it, who barely sees the motion of the hand, and hears the clock strike, and observes only some of the outward appearances.[13]

In sum, for the mechanical philosophers, the universe and all that it contains, living organisms included, is an intricate machine created by the divine mechanic and great clockmaker. The ontological distinction held by the Aristotelians for centuries between living substance and inanimate artifact effectively disappeared.

With the birth of this new worldview, the scientific enterprise also changed. Where the Aristotelians had thought that an organism is explained by identifying its four causes, the mechanists became convinced that a biological system, indeed any physical phenomenon, is most fruitfully explained by identifying its parts and by describing how these parts function individually and together, using mathematics. Like geometers,

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Animall but the very haire growing upon his legs, now let us but consider what a multitude of Atomes must concurre to constitute the severall parts externall and internall necessary to make out this little Engine."

[13] John Locke, *An Essay Concerning Human Understanding*, Book III.6.3.

biologists would now explain *why* by explaining *how*, and preferably, with numbers.[14] In effect, during the scientific revolution, formal explanations were replaced by structural ones that focus on explaining a body by characterizing its material parts according to qualities capable of geometrical and mathematical description.[15] It is a conviction that continues to drive biologists today. Indeed, molecular and cellular biologists, myself included, seek the ideal of explaining a particular occurrence of life with a mechanism, i.e., with a description of how the interaction of specific molecular parts, may they be genes, nucleic acids, proteins, or metabolites, gives rise to that phenomenon.[16] With this paradigm shift to a mechanical biology, it should not be surprising that substantial forms were jettisoned as unnecessary and unscientific vestiges of an outdated (and, in the view of many mechanists, false!) worldview.

Early Modern Scientific Objections to Substantial Forms: René Descartes

Historians of the early modern period are generally agreed that the mathematician René Descartes, considered the father of modern philosophy, makes his strongest case against substantial forms in a letter to the Dutch philosopher and physician Henricus

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[14] For discussion, see William Bechtel and Adele Abrahamsen, "Explanation: a mechanist alternative," *Stud. Hist. Phil. Biol. & Biomed. Sci.* 36 (2005): 421-441.

[15] William R. Newman attributes structural explanations to mechanical philosophy. See Newman, *Atoms and Alchemy*, 176. For a discussion on structural explanations, see Ernan McMullin, "Structural Explanation," *American Philosophical Quarterly* 15 (1978): 139-147.

[16] Lindley Darden, "Strategies for Discovering Mechanisms: Schema Instantiation, Modular Subassembly, Forward/Backward Chaining," *Philosophy of Science* 69 (2002): S354-S365.

Regius (1598-1679) written in January of 1642.[17] He raises several objections against hylomorphic theory. In my view, the most significant objections from a scientific perspective are three.

First, he argues that substantial forms have no explanatory power in science: "We merely claim that we do not need them in order to explain the causes of natural things."[18] Instead, Descartes proposes that his mechanical account, "on the other hand, give manifest and mathematical reasons for natural actions, as can be seen with regard to the form of common salt in my *Meterology*."[19]

Second, and in a related objection, he argues that substantial forms are explanations that explain what is not known by what is even less known: "But no natural action at all can be explained by these substantial forms, since their defenders admit that they are occult and that they do not understand them themselves. If they say that some action proceeds from a substantial form, it is as if they said that it proceeds from something they do not understand; which explains nothing."[20] As such, they are meaningless.

Finally, Descartes equates substantial forms to the "forms" of mechanical artifacts and then concludes that appealing to the former kind of forms is as unnecessary as appealing to the latter: "All the arguments to prove substantial forms can be applied to

[17] Helen Hattab, *Descartes on Forms and Mechanisms* (Cambridge: Cambridge University Press, 2009), p. 16.
[18] "Letter to Regius, January, 1642" in René Descartes, *The Philosophical Writings of Descartes*, *Volume III The Correspondence*, Trans. John Cottingham, Robert Stoothoff, Dugald Murdoch, and Anthony Kenny (Cambridge: Cambridge University Press, 1991), p. 207.
[19] Ibid.,p. 209.
[20] Ibid., pp. 208-209.

the form of a clock, which nobody says is a substantial form."[21] Importantly this correspondence also includes his definition of a substantial form: "To prevent any ambiguity of expression, it must be observed that when we deny substantial forms, we mean by the expression a certain substance joined to matter, making up with it a merely corporeal whole, and which, no less than matter and even more than matter – since it is called an actuality and matter only a potentiality – is a true substance, of self-subsistent thing."[22] As we saw in Chapter One, this is not Aristotle's or St. Thomas's understanding of substantial form. Substantial form is not "a certain substance joined to matter" as Descartes would have it. Rather, substantial form is a principle of being, which together with prime matter, gives rise to a really existing substance.

Early Modern Scientific Objections to Substantial Forms: Robert Boyle

Like Descartes before him, the 17th century philosopher and chemist Robert Boyle undertook a sustained attack on substantial forms, especially in his *The Origin of Forms and Qualities*, which is recognized as his major treatment of the subject.[23] Scholars consider it the most sustained and influential case against scholastic essences mounted by a proponent of the new mechanical philosophy.[24]

Boyle makes two theoretical and one experimental argument to dismiss substantial forms. First, like Descartes, he argued that substantial forms have no

[21] Ibid., p. 208.
[22] Ibid., p. 207.
[23] Peter R. Anstey, "Essences and Kinds," in *The Oxford Handbook of Philosophy in Early Modern Europe,* ed. Desmond M. Clarke and Catherine Wilson (Oxford: Oxford University Press, 2011), pp. 11-31.
[24] Ibid., p. 19.

explanatory power because of their occult, i.e., their hidden, nature. In his view, the Aristotelian scholastics were explaining the obscure by referring to realities that were even more obscure:

> [F]or what is wont to be taught us of qualities in the Schools is so slight and ill-grounded that it may be doubted whether they have not rather obscured than illustrated the things they should have explained. And I was quickly discouraged from expecting to learn much from them of the nature of divers particular qualities, when I found that, except some few which they tell you in general may be deduced (by ways they leave those to guess at that can) from those four qualities they are pleased to call the *first,* they confess that the rest spring from those forms of bodies whose particular natures the judiciousest of them acknowledge they cannot comprehend.[25]

Thus, for Boyle, appeals to substantial forms are meaningless explanations. Later in *Forms and Qualities*, he describes an imaginary conversation with an Aristotelian scholastic to make the same point:

> As, if (for instance) it be demanded how snow comes to dazzle the eyes, they will answer that it is by a *quality* of whiteness that is in it, which makes all very white bodies produce the same effect…and if you further enquire what this real entity which they call a *quality* is, you will find, as we shall see anon, that they either speak of it much after the same rate that

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[25] Robert Boyle, "On the Origin of Forms and Qualities," p. 13.

they do of their substantial forms…or at least they will not explicate it more intelligibly.[26]

In fact, Boyle observes that when Aristotelians speak about substantial forms, they are actually referring not to its substance but to its accidents:

> And if you ask men what they mean by a ruby, or nitre, or a pearl, they will still make you such answers that you may clearly perceive that, whatever me talk in theory of substantial forms, yet that upon whose account they really distinguish any one body from others, and refer it to this or that species of bodies, is nothing by an aggregate or convention of such accidents as most men do by a kind of agreement (for the thing is more arbitrary than we are aware of) think necessary or sufficient to make a portion of the universal matter belong to this or that determinate genus or species of natural bodies.[27]

Therefore, Boyle concludes that one does not need to appeal to substantial forms to explain the behavior of material bodies. Instead, once can just posit that these qualities proceed from the primary or mechanical "affections" of matter, namely shape, size, motion, and texture:

> [S]ince an aggregate or convention of qualities is enough to make the portion of matter it is found in what it is, and denominate it of this or that determinate sort of bodies, and since those qualities, as we have seen already, do themselves proceed from those more primary and catholic

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[26] Ibid., p. 16.
[27] Ibid., p. 38.

affections of matter – bulk, shape, motion, or rest – and the texture thence

resulting, why may we not say that the form of a body, being made up of

those qualities united in one subject, doth likewise consist in such a

convention of those newly-named mechanical affections of matter as is

necessary to constitute a body of that determinate kind?"[28]

In support of this claim, Boyle appeals to the experience and the arguments of the alchemists of his day proposing that substantial forms are not needed to distinguish one thing of a natural kind from another kind of thing. Only accidents are sufficient:

[I]f a man could bring any parcel of matter to be yellow and malleable and

ponderous, and fixed in the fire, and upon the test, indissoluble in *aqua*

fortis [nitric acid], and in sum to have a concurrence of all those accidents

by which men try true gold from false, they would take it for true gold

without scruple. And in this case the generality of mankind would leave

the School doctors to dispute whether, being a factitious body (as made by

the chemist's art), it have the substantial form of gold.[29]

He will conclude: "For such a convention of accidents is sufficient to perform the offices that are necessarily required in what men call a *form*, since it makes the body such as it is, making it appertain to this or that determinate species of body."[30]

Second, Boyle, again like Descartes, compares living bodies to machines suggesting that substantial forms are not needed to explain the behavior of the former in the same way that they are not necessary to explain the behavior of the latter:

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[28] Ibid., pp. 39-40.
[29] Ibid., p. 38.
[30] Ibid., p. 40.

And whereas it is said by some that the form also of a body ought to be the principle of its operations…what great things may be thereby performed may be somewhat guessed at by the strange things we see done by engines, which, being as engines undoubtedly devoid of substantial forms, must do those strange things they are admired for by virtue of those accidents, the shape, size, motion, and contrivance, of their parts.[31]

This is reinforced in Boyle's view by his observation that the boundaries between natural bodies of different species are unclear and appear to be grounded in convention rather than in nature: "[Y]et that upon whose account they really distinguish any one body from others, and refer it to this or that species of bodies, is nothing by an aggregate or convention of such accidents as most men do by a kind of agreement."[32]

Finally, Boyle argues that hylomorphic theory cannot explain the data he has obtained from three experiments, empirical arguments that have been expertly outlined by historian of science, William Newman.[33] Most fundamentally, he argues that the behavior of the chemical entities involved in both "redintegration" and "reduction to the pristine state" experiments can be explained only by appealing to the separation and recombination of preexistent chymical atoms and not by talking about substantial forms. For instance, Boyle noted that the recovery of pure silver from an alloy of gold and silver using *aqua fortis*, what today we would call nitric acid, and a process of dissolution and precipitation is better explained by a corpuscularian theory and not by a hylomorphic one. This chymical reaction is only one example of what today we would call reversible

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[31] Ibid., pp. 40-41.
[32] Ibid., p. 28.
[33] Newman, *Atoms and Alchemy*, pp. 190-216.

chemical reactions, reactions that are difficult to explain using an Aristotelian theory of mixtures that posits that mixtures do not retain the original substantial forms of the entities that compose them.[34]

Early Modern Scientific Objections to Substantial Forms: John Locke

Finally, the philosopher and physician, John Locke, who had had Boyle as a tutor at Oxford, raised two basic arguments against the existence of substantial forms, which he described in several scattered texts in his *Essay concerning Human Understanding*. The first is a scientific objection based on Locke's medical experience, while the second is a philosophical one that emerges from his corpuscularian theory of matter.

First, Locke attacks substantial forms by pointing to the birth of abnormal creatures, which he and his contemporaries called monsters and changelings – today, we would call them, animals with birth defects – that appear to straddle the species boundary between organisms of two distinct natural kinds. In Locke's view, this demonstrates that the boundaries between species of a natural kind are indeterminate and indistinct, an empirical fact that is incompatible with a theory of substantial forms that distinguishes one species from another in a discrete manner:

> The frequent productions of monsters, in all the species of animals, and of changelings, and other strange issues of human birth, carry with them difficulties, not possible to consist with this *hypothesis* [of substantial forms]; since it is as impossible that two things partaking exactly of the

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[34] For an extensive discussion and defense of this claim, see Newman, *Atoms and Alchemy,* pp. 157-216.

same real *essence* should have different properties, as that two figures

partaking of the same real *essence* of a circle should have different

properties.[35]

Locke even believed that he had witnessed the birth of an animal that was part cat and

part rat: "I once saw a creature that was the issue of a cat and a rat, and had the plain

marks of both about it; wherein nature appeared to have followed the pattern of neither

sort alone, but to have jumbled them both together."[36] In Locke's view, these chimeras

and all abnormal creatures that are born are proof that a theory of matter that posits the

existence of substantial forms "wherein all natural Things, that exist, are cast" must be

erroneous.[37]

Next, like Descartes and Boyle before him, Locke argued that hylomorphic theory

has no explanatory power because substantial forms have no real referent. Instead, in

Locke's view, the only really existing things are the qualities that are verifiable to the

senses:

For I have an idea of figure, size, and situation of solid parts in general,

though I have none of the particular figure, size, or putting together of

parts, whereby the qualities above mentioned are produced; which

qualities I find in that particular parcel of matter that is on my finger, and

not in another parcel of matter, with which I cut the pen I write with. But,

when I am told that something besides the figure, size, and posture of the

[35] John Locke, *An Essay Concerning Human Understanding*, Book III.3.17.
[36] Ibid., III.6.23.
[37] Ibid., III.3.17.

solid parts of that body in its essence, something called substantial form, of

that I confess I have no idea at all.[38]

Thus, for Locke, the notion of substantial forms lacks any content and as such is unintelligible and meaningless:

Those, therefore, who have been taught that the several species of substances had their distinct internal substantial forms, and that it was those forms which made the distinction of substances into their true species and genera, were led yet further out of the way by having their minds set upon fruitless inquiries after "substantial forms"; wholly unintelligible, and whereof we have scarce so much as any obscure or confused conception in general.[39]

Instead, Locke proposed that the real essences of substances are the corpuscular structures of the material objects that underlie the qualities that we can perceive when we sense the objects:

[T]he nominal essence of gold is that complex idea the word gold stands for, let it be, for instance, a body yellow, of a certain weight, malleable, fusible, and fixed. But the real essence is the constitution of the insensible parts of that body, on which those qualities and all the other properties of gold depend.

Note that this second objection does not really undermine hylomorphism in itself. Instead, Locke is simply asserting an alternative nominalist account to explain reality. It is

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[38] Ibid., III.31.6.

[39] Ibid., Book III.6.10.

a rival to the Aristotelian matter-form framework that emerges from Locke's corpuscular theory of matter.

Rehabilitating Substantial Forms with a Systems Biology

The past decade has witnessed an emergence of a new biology, a systems biology, which has challenged many of the reductive assumptions of the mechanical biology.[40] Systems biologists are motivated by the conviction that we will not be able to understand biology until we fully appreciate what one systems biologists has called the "fifth great idea" in biology, summarized as follows: "Multi-scale dynamic complex systems formed by interacting macromolecules and metabolites, cells, organs, and organisms underlie most biological processes."[41] In my view, systems biology is both an approach to doing biology and a perspective of living beings – the systems perspective – that will facilitate the rehabilitation of classical hylomorphism, transforming it into a systems hylomorphism.

Where the old biology focused on identifying individual biological parts like genes or cells or tissues to understand the whole organism, the new biology focuses on studying the whole organism to understand how its interacting parts give rise to phenomena that cannot be reduced to the behavior of those individual parts. Elsewhere, I have used the

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[40] For a historical overview, see Hans V. Westerhoff and Bernhard O. Paisson, "The evolution of molecular biology into systems biology," *Nat Biotech* 22 (2004): 1249-1252.
[41] Marc Vidal, "A unifying view of 21st century systems biology," *FEBS Letters* 583 (2009): 3891-3894; p. 3891. For a discussion of the four other great ideas in biology, see Paul Nurse, "The great ideas of biology," *Clin. Med* 3 (2003): 560-568.

example of an orchestra to describe this change in perspective.[42] To explain an orchestra, it is not enough to list and to describe the individual musicians and their instruments, which is the approach of the old biology. One must also understand and describe how they interact with each other and within the whole to make Beethoven's "Fifth Symphony" come alive for the audience. This is the approach of the new systems biology.

An Overview of Systems Biology

Systems biologists want to understand the principles that give rise to the architecture and to the dynamics of an organism, viewed as a living and adaptive network of molecular parts. They have discovered that at any given moment in time, an organism is constituted by a multitude of physical interactions among trillions of spatially distributed molecules that change through time. These molecules include among others, an organism's genes, its proteins, and its metabolites, which are the biochemical intermediates and products of the set of life-sustaining chemical transformations that undergird the organism's growth, development, behavior, and reproduction. The

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[42] For earlier descriptions of the systems perspective that have been revised and updated in this chapter, see the following essays: Austriaco, N., "On Static Eggs and Dynamic Embryos: A Systems Perspective" *National Catholic Bioethics Quarterly* 2 (2002): 659-683; Austriaco, N., "Immediate Hominization from the Systems Perspective," *National Catholic Bioethics Quarterly* 4 (2004): 719-738; and Austriaco, N., "The Soul and Its Inclinations: Recovering a Metaphysical Biology with the Systems Perspective," in *The Human Animal: Procreation, Education, and the Foundations of Society,* Proceedings of the X Plenary Session, 18-20 June 2010, The Pontifical Academy of St. Thomas Aquinas (Vatican City: The Pontifical Academy of St. Thomas Aquinas, 2011), pp. 48-63.

complete list of these interactions among these molecules has been called an organism's interactome.[43]

As an example, take the 1mm-long transparent worm called *Caenorhabditis elegans* that is the subject of scientific investigation in numerous genetic and molecular laboratories around the world. Systems biologists began by identifying the physical interactions among the proteins important either for making individual organs or for regulating particular cellular functions necessary for life, like the repair of DNA damage.[44] They then combined the individual data sets of local protein interactions to generate a map of the global protein interactions that give shape to the architecture of the whole animal.[45] Similar efforts have gone into deciphering the global interactions of the organism's genes and metabolites.[46] Together, these maps highlight the molecular network that is the worm. They are comparable to a diagram of a symphonic orchestra that shows the relationships among the musicians and their instruments in the musical ensemble, or to an organizational chart that illustrates the relations between the people working in a large multinational company. They depict the architecture of the organism, the orchestra, and the business, by revealing the relationships among the parts that

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[43] K. Venkatesan et al., "An empirical framework for binary interactome mapping," *Nat Methods* 6 (2008): 83-90.

[44] A.J. Walhout et al., "Protein interaction mapping in C. elegans using proteins involved in vulval development," *Science* 287 (2000): 116–122; A. Davy et al., "A protein–protein interaction map of the Caenorhabditis elegans 26S proteasome," *EMBO Rep.* 2 (2001): 821–828; S.J. Boulton et al., "Combined functional genomic maps of the C. elegans DNA damage response," *Science* 295 (2002): 127–131.

[45] S. Li et al., "A map of the interactome network of the metazoan C. elegans," *Science* 303 (2004): 540–543.

[46] B. Lehner et al., "Systematic mapping of genetic interactions in Caenorhabditis elegans identifies common modifiers of diverse signaling pathways," *Nat Genet* 38 (2006): 896-903. For a review, see K.C. Gunsalus and K. Rhrissorrakrai, "Networks in Caenorhabditis elegans," *Curr Opin Genet Dev* 21 (2011): 787-798.

compose the whole. Comprehensive genetic, protein, and metabolic interaction maps have also been generated for the human organism.[47]

Systems biologists have made one striking observation about the architecture of these living networks: surprisingly, the interaction networks from different organisms including yeast, plants, and animals, have similar topographical features. To use the technical jargon of systems biology, it appears that all living systems are scale-free, small-world networks. To explain, a network is composed of nodes and edges, where the nodes are the component parts of the network and the edges represent the interactions between the spatially distributed component parts. Take the familiar example of an airline route network. The airports are the nodes, and the routes between these airports are the edges. Scale-free networks are networks where a few nodes, called hubs, have interactions with many partners, while the rest of the nodes, called non-hubs, have interactions with only a few others.[48] An airline route network is a scale-free network: A few airports like Newark, Chicago, and Denver, which not surprisingly are called airline hubs, are highly connected to numerous smaller airports like Providence, Wichita, and Bismarck, which are

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[47] J.-F. Rual et al., "Towards a proteome-scale map of the human protein–protein interaction network.," *Nature* 437 (2005): 1173–1178; U. Stelzl et al., "A human protein-protein interaction network: a resource for annotating the proteome," *Cell* 122 (2005) 957–968; R.M. Ewing et al., "Large-scale mapping of human protein–protein interactions by mass spectrometry," *Mol. Syst. Biol.* 3 (2007): 89; H. Ma et al., "The Edinburgh human metabolic network reconstruction and its functional analysis," *Mol. Syst. Biol.* 3 (2007): 135; N.C. Duarte et al., "Global reconstruction of the human metabolic network based on genomic and bibliomic data," *Proc. Natl Acad. Sci. USA* 104 (2007): 1777–1782.
[48] A.L. Barabási and R. Albert, "Emergence of scaling in random networks," *Science* 286 (1999): 509–512.

sometimes called spokes. It appears that this hub-spoke architecture is also typical of living networks.[49]

Living networks, like airline route networks, are also small-world networks, which means that there are relatively short paths between any pair of nodes, because of the interconnectivity of the hubs.[50] In an airline route network, this means that passengers only have to transit through a small number of airports to travel from any one airport to any other destination. In a protein-protein network, this means that most proteins are only a few interactions away from any other protein in the organism.[51] Biologists have suggested that the scale-free, small-world architecture of living systems facilitates their robustness, which we will discuss in more detail below, and their evolvability.[52]

Systems biologists have also begun to explain the dynamic behavior of living systems. I highlight three global properties of this behavior here. First, biological systems are self-organizing. Self-organization is a process in which pattern at the global level of a system emerges solely from numerous interactions among the lower-level components of the system.[53] However, the rules specifying interactions among the system's components are executed using only local information, without reference to the global pattern. In

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[49] For a review of the scientific literature, see R. Albert, "Scale-free networks in cell biology," *J Cell Sci* 118 (2005): 4947-4957.

[50] D. J. Watts and S.H. Strogatz, "Collective dynamics of 'small-world' networks," *Nature* 393 (1998): 440-442.

[51] H. Jeong et al., "Lethality and centrality in protein networks," *Nature* 411 (2001): 41-42.

[52] M. Aldana, E. Balleza, S. Kauffman, and O. Resendiz, "Robustness and evolvability in genetic regulatory networks," *J Theoretical Biology* 245 (2007): 433-448.

[53] Scott Camazine, Jean-Louis Deneubourg, Nigel R. Franks, James Sneyd, Guy Theraula, and Eric Bonabeau, *Self-Organization in Biological Systems* (Princeton: Princeton University Press, 2001), p. 8.

other words, in a self-organizing system, pattern emerges among the parts without reference to the whole.

Turning to our example of the orchestra, a self-organizing orchestra would perform without either a conductor or a musical score. Instead, in the self-organizing orchestra, an individual musician would seek to play his instrument in harmony only with the musicians close to him. Some of these musicians would be hubs, and they would play with several other players, while others would be non-hubs, and they would harmonize their instruments with only one other musician in the group. In this way, music would emerge in an unorchestrated and unpredictable manner. Self-organization has been empirically observed in the formation, maintenance, and function of cellular components including the cell's nucleus and its Golgi apparatus.[54] The mammalian embryo too is a self-organizing system whose origin can be traced back to fertilization.[55]

Next, biological systems are emergent. They manifest emergent properties, which are global properties of the whole that arise from the interaction of its parts in an unexpected or unpredictable manner given the fundamental principles that govern the behavior of those parts.[56] In our orchestra example, the music that is generated by the

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[54] For review, see Tom Misteli, "The concept of self-organization in cellular architecture," *J Cell Biol* 155 (2001): 181-186.

[55] S. Wennekamp et al., "A self-organization framework for symmetry breaking in the mammalian embryo," *Nat Rev Mol Cell Biol* 14 (2013): 452-459.

[56] There are two kinds of emergence described in the philosophical literature. Strong emergence involves emergent properties of higher-level processes that cannot *in principle* be derived from the knowledge of lower-level processes. In contrast, weak emergence involves emergent properties of higher-level process that *in principle* could be derived from the knowledge of lower-level processes, though it is not possible to do so at this point in time. Given the evidence, I do not think that we know whether life as a phenomenon is an instance of either strong or weak emergence. For discussion, see J. Chalmers, "Strong and Weak Emergence," in *The Re-emergence of Emergence* ed. P.

self-organizing orchestra is an emergent property of the system. The music cannot be reduced to the music of any one single musician and his instrument. It is a product of the whole precisely as whole. Life itself is the most significant emergent property in biology though philosophers have proposed that other emergent phenomena exist in living systems including self-replication and multicellularity.[57]

Third, biological systems are robust. Robustness is a property of a complex network that allows it to maintain its functionality despite internal and external perturbations.[58] It has also been defined as the ability to maintain performance in the face of perturbations and uncertainty.[59] In biology, robustness is that property that allows an organism to survive in the face of genetic and/or environmental stresses that threaten its life. In living systems, it is maintained by positive and negative feedback loops, redundant and fail-safe mechanisms, and the modularity of the network architecture.[60] Recall that living systems are self-organizing. Once they are set in motion, the interacting parts generate the behavior of the whole that is unorchestrated and unpredictable. However, the behavior of the whole is still bounded and directed by the architecture and

Clayton and P. Daves (Oxford University Press, 2006), pp. 244-256; and M. Bedau, "Weak Emergence," *Philosophical Perspectives* 11 (1997): 375-399. Also, see Jaegwon Kim, "Emergence: Core ideas and issues," *Synthese* 151 (2006): 347-354. For a discussion of emergence from a scientist's perspective, see Stuart Kauffman, *At Home in the Universe: The Search for the Laws of Self-Organization and Complexity* (New York: Oxford University Press, 1993).

[57] For discussion, see Lynn J. Rothschild, "The Role of Emergence in Biology," in *The Re-emergence of Emergence* ed. P. Clayton and P. Daves (Oxford University Press, 2006), pp. 151-165.

[58] For discussion, see Hiroaki Kitano, "Biological Robustness," *Nat Rev Genet* 5 (2004): 826-837.

[59] J. Stelling, U. Sauer, Z. Szallasi, F.J. Doyle III, and J. Doyle, "Robustness of cellular functions," *Cell* 118 (2004): 675-685.

[60] Hiroaki Kitano, "Towards a theory of biological robustness," *Mol Syst Biol* 3 (2007): 137.

composition of the living system. Or to put it another way, because of the interactions among the molecular components, the living system generally changes over time in a coordinated way, and this coordination restricts the trajectories that the system may take in space over time. Robustness is partially responsible for this feature of biological systems.

Take the mammalian embryo. The developmental trajectory of a particular human embryo is unpredictable because of the impact of the environment on mammalian development – we cannot predict whether a particular individual human embryo will become a thin or a fat or a tall or a short adult, traits that often depend on whether or not the human being grows up in a rich country or in a poor one – though its development is still bounded and directed – we know that a human embryo will grow up to become an adult human and not an adult kangaroo! Robustness is that property that keeps the developing embryo on its developmental trajectory, moving from one developmental state to another – in the technical jargon of systems theory, from one attractor in the state space to another – regardless of any potentially disruptive genetic mutations or of any potentially debilitating environmental stresses that it could encounter. In our example, the self-organizing orchestra can be made robust with redundancy and modularity. Including extra violins, extra trombones, and extra cellos would buffer the orchestra from potentially disruptive illnesses. The orchestra would be able to perform even if one or two or three of the musicians came down with the flu.

Finally, I should note that systems biologists are attempting to model dynamic living networks with sets of coupled differential or difference equations.[61] In my view, MacArthur et al. have described the elements of this mathematical modeling process best, and I will quote them extensively here:

> The molecular state of a cell can be described by its state vector $s(t) = [m_1(t), m_2(t), m_3(t), \ldots, m_n(t)]$, in which $m_n(t)$ denotes the concentration of the ith molecular component at time t. The set of all possible molecular configurations is called the 'state space'. A dynamical system is a mathematical description of how a system's state vector changes over time based on the interactions between all the various components in the system (in the form of a set of coupled differential or difference equations, for example). Owing to the coupling between molecular components, the expression levels of the different components in a dynamical system generally change over time in a coordinated way, and this coordination restricts the trajectories that the system may take in state space over time. An attractor of a dynamical system is a minimal subset of state space A, such that all trajectories starting in the vicinity of A approach A eventually. Intuitively, attractors can be thought of as stable preferred states in which all the various interactions in the system are balanced and towards which the system is drawn over time…For a given attractor A, the subset of state space N_A for which all trajectories starting in N_A approach A

[61] Ingo Brigandt, "Systems biology and the integration of mechanistic explanation and mathematical explanation," *Studies in History and Philosophy of Biological and Biomedical Sciences* 44 (2013): 477-492.

for large time is known as the 'basin of attraction' of A…The basins of attraction of the various attractors in a multi-stable system partition the state space into discrete pieces. As stationary attractors can intuitively be associated with the minima of an 'energy-like' function, in the context of cellular differentiation this partitioning is sometimes referred to as the attractor landscape."[62]

I expect that this mathematical research project will yield sets of differential equations that will eventually describe the total sum of all the possible patterns of an organism's living system, called the organism's state space. As we will see below, these equations will described an organism's substantial form, in the same way that the equations, $(x-a)^2 + (y-b)^2 = r^2$ and $(x - x_0)^2 + (y - y_0)^2 + (z - z_0)^2 = r^2$, describe the forms of the circle and the sphere respectively.

Rehabilitating the Classical Hylomorphism of St. Thomas with the Systems Perspective

We now turn to the recovery of matter and of form with the systems perspective. I focus here on the notion of substantial form since this is what gives actuality to matter, and it is actuality and not potentiality that is empirically verifiable by science. Once we have recovered a notion of substantial form in an organism, then its matter would be the correlative metaphysical principle that is actualized by that substantial form.

To begin, we should note that the systems perspective, like the classical hylomorphic perspective of Aristotle and of St. Thomas, is a substantial perspective. The

[62] Ben D. MacArthur, Avi Ma'ayan, and Ihor R. Lemischika, "Systems biology of stem cell fate and cellular reprogramming," *Nat Revs Molec Cell Biol.* 10 (2009): 672-681.

organism is a single, unified network of interacting molecules which is organized in a species-specific manner. Here, the whole is greater than the sum of the parts. A typical 70-kg man is made up primarily of oxygen (43-kg), carbon (16-kg), hydrogen (7-kg), nitrogen (1.8-kg), and calcium (1-kg).[63] However, what makes this reference man radically different from a 68.8-kg pile of these five elements is that in his case, the elements are organized and interact in a particular way, a species-specific way. Indeed, a snapshot of the human body at any point in time would reveal an intricate net of molecular interactions among a multitude of macromolecules distributed in three-dimensional space. From the systems perspective, the total sum of all the organized patterns of the molecules in the human being through developmental time – in the jargon of systems theory, the organism's state space or phase state – would be a manifestation of his substantial form.

To see how the dynamical network of molecular interactions over time can be said to manifest the substantial form, note the parallels between four functions associated with this dynamic network and the four functions traditionally associated with the soul of an organism. First, the substantial form is the cause for an organism's life. It explains how the organism is alive. In the same way, the network of macromolecular interactions changing over time is also a cause for a living thing's emergent properties. It too provides an explanation for the life of the organism. Radically disrupting this network mechanically or pharmacologically would lead to the death of the organism.

[63] Body composition data was obtained from the following: International Commission on Radiological Protection, *Report of the Task Group on Reference Man: A Report,* ICRP Publication, no. 23 (Oxford: Pergamon Press, 1975); and International Commission on Radiological Protection, "Basic Anatomical and Physiological Data for Use in Radiological Protection: Reference Values," *Annals of the ICRP* 32 (2002): 1-277.

Second, the substantial form makes an organism what it is. It is the ground for the being's nature. From a physiological perspective, for example, the net of macromolecular interactions organized in a human-specific manner – the human interactome – makes a man what he is and distinguishes him from a kangaroo or a tomato plant or some other living thing. Different kinds of organisms have different species-specific interactomes. Different individuals within each species would also have unique interactomes specified not only by their genomes but also by the environment in which those genomes developed and unfolded. In other words, the interactomes undergird both the specific and the individual natures instantiated in this particular organism. From the Aristotelian perspective, they reveal the substantial form and, in the context of the individual, its relationship with matter.

Third, the soul unifies and integrates an organism maintaining its identity through changes. The human body is in a constant state of molecular flux. It is said that every two years, nearly all of its atoms are replaced.[64] However, the dynamic pattern of the molecular interactions of an organism remains the same pattern over time – in the jargon of systems theory, the system moves along a defined phase space trajectory – because of its robustness, providing a ground for the substantial unity and identity of an individual organism with a lifespan of eighty or more years.

Finally, the substantial form specifies the teleological end of the substance. Recall that organisms like all self-organizing networks, though they are unpredictable, are directed and robust. A developing mammalian embryo because of its interactome moves

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[64] For the calculations that support this claim, see my paper, "The Pre-Implantation Embryo Revisited" A Two-Celled Individual or Two Individual Cells?" *Linacre Quarterly* 70 (2003): 121-126.

along a trajectory that is specified by the initial macromolecular conditions at fertilization. These conditions are determined by the maternal genome, the embryonic genome, and the network architecture of the egg and sperm at fusion. Systems biology allows us to recover an organism's final causality within the framework of contemporary science.

To summarize, the systems perspective described here represents one attempt to reformulate the received philosophical framework of classical hylomorphism so that it incorporates the insights of modern biology. Here, the human animal is a substantial being, a dynamic network of macromolecules now existing not as independent molecules *per se* but as different virtual parts of the one human organism. This species-specific network, which is distributed in three-dimensional space, and which is able to interact over time in the robust, self-organizing process that we call human development, is a manifestation of the human being's substantial form, what is commonly called his soul. The correlative metaphysical principle that is actualized by that substantial form would be its matter.

Rehabilitating the Natural Ends of the Human Organism a Systems Biology

In addition to conceptualizing the teleological ordering of living organisms, St. Thomas also worked to identify the natural ends of the human being. He did this by identifying those inclinations, called connatural inclinations by the Angelic Doctor, that belong to human beings by nature.[65] In common with other substances, St. Thomas noted that we have an inclination to the good in accordance with our nature in as much as every

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[65] *STh* I-II.94.2.

substance seeks preservation of its own being. Next, in common with other animals, we have an inclination towards procreation and the preservation of the species. Finally, in accordance with our rational nature, we have an inclination towards truth, especially the truth about God, in the context of a human society. Significantly, this list of natural inclinations was not meant to be exhaustive.[66] Nonetheless, it is a basic taxonomy of the natural ends to which all human beings are inclined.

How can we talk about the natural ends of the human organism today? The systems hylomorphism described above emphasizes the holism and directedness of animal development. However, it also provides us with a contemporary framework to recover the teleological orientation, and therefore the natural ends, of the human organism. Basically, the species-normative network of molecular interactions that distinguishes a man from either a lion or a dolphin, his state space, is the ontological foundation for human nature. It reveals his substantial form. However, this also suggests that the species-normative inclinations, because they are coextensive with the systems network that that came to be at fertilization, should predate the appearance of elicited desire or rational choice. Thus, we expect that we should be able to identify these connatural human inclinations by observing newborns and toddlers before they attain the age of reason.

What are these natural inclinations that pre-exist elicited desire or rational choice? Developmental cognitive psychologists have identified numerous inclinations in

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[66] For discussion, see Clifford G. Kossel, S.J., "Natural Law and Human Law (Ia IIae, qq. 90-97)" in *The Ethics of Aquinas,* ed. Stephen J. Pope (Washington, D.C.: Georgetown University Press, 2002), pp. 169-193.

babies and infants that appear to be universal, and as such, species-normative.[67] I will

discuss four categories of these connatural inclinations here. This is not meant to be an

exhaustive list of these inclinations.[68]

First, and most basically, there is the connatural inclination towards the self-

preservation of the human organism. At birth, this inclination is manifested in numerous

reflexes. For instance, the Moro reflex is a neonatal startle response that moves newborns

to grab for support if they are startled by a sudden intense sound or movement.[69] It

disappears by six months of age. Two reflexes that manifest the newborn's inclination

towards food, and therefore to life, are the sucking reflex and the rooting reflex. The

sucking reflex moves newborns to automatically suck any object placed in their mouths,

while the rooting reflex moves infants to turn their heads towards the side of their mouth

that is touched or stroked. Again, both these reflexes disappear by the time the child is

four months olds. They are replaced by other behaviors that manifest themselves when

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[67] For the discussion that follows, I am indebted to Alison Gopnik for her comprehensive and up-to-date overview of the developmental psychology of the very young infants: *The Philosophical Baby* (New York: Farrar, Straus, and Giroux, 2009).

[68] Most significantly, I do not discuss the connatural inclination towards sexual intimacy and procreation that appears later in human development, most significantly at puberty, nor the natural disinclinations that dispose the human being towards acts that are not perfective of his nature. For an analysis of these disinclinations, which I have linked to fallen human nature, see my essay, "A Theological Fittingness Argument for the Historicity of the Fall of *Homo sapiens*" *Nova et Vetera* 13 (2015): 651-667.

[69] For a summary of the reflexes in normal newborns, see T. Weggemann et al., "A Study of Normal Baby Movements," *Child Care Health Dev.* 13 (1987): 41-58; and Y. Futagi, Y. Toribe, and Y. Suzuki, "The grasp reflex and more reflex in infants: hierarchy of primitive reflex responses," *Int J Pediatr* 2012 (2012): 191562.

the child is hungry. There is also evidence that we are hard-wired to quickly fear spiders and snakes from a very early age.[70]

Second, there are those connatural inclinations specifically ordered towards life in society. Three specific inclinations belong to this category. First, there is the inclination to what developmental psychologists call attachment.[71] Attachment, the craving for protection and care from another, is innate and universal. By the time babies are about one year old, they have discovered that a few people care for them in a special way, and that these individuals are the ones they should turn to for love. Infants soon develop what some developmental psychologists call an internal working model of attachment that guides their expectations about relationships throughout life. They are causal maps for care.[72] Secure babies conclude that caregivers will quickly make them feel better. Avoidant babies think that expressing distress will only cause more misery for themselves, and so are stoic in their response to separation. Anxious babies are unsure that comfort will be effective in alleviating their discomfort. These three types of babies have acquired different internal working models of attachment. Notably, there is evidence that these

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[70] V. LoBue et al., "Threat Perception Across the Life Span: Evidence for Multiple Converging Pathways," *Current Directions in Psychological Science* 19 (2010): 375-379.

[71] For a comprehensive discussion of attachment, see the essays in Colin Murray Parkes, Joan Stevension-Hinde, and Peter Marris, eds. *Attachment Across the Life Cycle* (New York: Routledge, 1991). For one attempt to link attachment theory and neuroscience, see R. Hruby, J. Hasto, and P. Minarik, "Attachment in integrative neuroscientific perspective," *Neuro Endocrinol Lett* 32 (2011): 111-120.

[72] For details and discussion, see M. Main, N. Kaplan, and J. Cassidy, "Security in Infancy, Childhood, and Adulthood: A Move to the Level of Representation," *Monogr Soc Res Child Dev.* 50 (1985): 66-104; and Mary Main, "The Organized Categories of Infant, Child, and Adult Attachment: Flexible vs. Inflexible Attention Under Attachment-Related Stress," *J Am Psychoanal Assoc* 48 (2000): 1175-1187.

internal working models impact the later psychological development or lack of development of adult humans.[73]

Next, there is the connatural inclination towards language, and thus towards communication. As any parent knows, children are programmed to learn language. Noam Chomsky has proposed that the human brain is structured in such a way that it is able to learn universal linguistic principles called the universal grammar.[74] This proclivity towards language begins in the womb as fetuses develop a preference for listening to their mother's voice and the language they hear her speak. Strikingly, a recent paper has even shown that newborn babies cry in language specific ways.[75] By five years of age, children have mastered the basic structure of their native language, whether spoken or manually signed. They have learned to communicate with themselves and with other human beings.

Finally, there is the connatural inclination towards psychological knowledge, theories of minds that allow a human being to live in a community. Developmental psychologists have shown that very young children engage in pretend play with imaginary companions, precisely to learn how people work in counterfactual scenarios.[76]

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[73] Thus, attachment theory may help psychologists understand human psychosis. For one scientific study, see A.I. Gumley, H.E. Taylor, M. Schwannauer, and A. Macbeth, "A systematic review of attachment and psychosis: measurement, construct validity, and outcomes," *Acta Psychiatr Scand.* 129 (2014): 257-274.

[74] For an introduction to universal grammar, see Vivian Cook and Mark Newson, *Chomsky's Universal Grammar: An Introduction*, 2nd ed. (Oxford: Blackwell Publishers, 1996). For an informative overview of basic linguistic theory, see R.L. Trask, *Language: The Basics,* 2nd ed. (London: Routledge, 2004).

[75] B. Mampe et al., "Newborns' Cry Melody Is Shaped by Their Native Language," *Curr Biol* 19 (2009): 1994-1997.

[76] For discussion, see Henry M. Wellman and Kristin H. Lagattuta, "Developing Understandings of Mind," in *Understanding Other Minds: Perspectives from*

Children from diverse cultures and backgrounds have imaginary companions that seem surprisingly resistant to adult influence. From two to six, children discover fundamental facts about how their own minds and the minds of others work.[77] They start to understand the causal connections between desires and beliefs, and emotions and actions. One of the central tenets of this theory of mind developed in very young children is that people may have different beliefs, perceptions, emotions, and desires, and that these differences may lead to different actions: People behave differently because they have different kinds of minds. In the end, human beings are inclined towards constructing a map that connects mental states to one another and to the world outside them.

Third, there are those inclinations directed towards true and sure knowledge. There are two distinct kinds of inclinations of significance in this category. First, there is the inclination towards what I will call, metaphysical or speculative knowledge. Experiments suggest that from infancy, children are programmed to construct causal graphical models that allow them to make correct predictions regarding the cause and effect relationships that govern the world.[78] Even three-month-old babies are able to do experiments with mobiles attached to one of their legs.[79] They will explore the contingencies between various limb movements and the movements of the toy. They will

Developmental Cognitive Neuroscience, 2nd ed., ed. Simon Baron-Cohen, Helen Tager-Flusberg, and Donald J. Cohen (New York: Oxford University Press, 2000), pp. 21-49.

[77] For a review of the field, see Henry M. Wellman, "Understanding the Psychological World: Developing a Theory of Mind" in *Blackwell Handbook of Childhood Cognitive Development*, ed. Usha Goswami (Malden, MA: Blackwell Publishing, 2002), pp. 167-187.

[78] For details and discussion, see the essays in Alison Gopnik and Laura Schulz, eds., *Causal Learning: Psychology, Philosophy, and Computation* (New York: Oxford University Press, 2007).

[79] For a review of these experiments with mobiles, see Carolyn Rovee-Collier, and Rachel Barr, "Infant Learning and Memory," in *Blackwell Handbook of Infant Development*, ed. Gavin Bremner and Alan Fogel (Malden, MA: Blackwell Publishing, 2001), pp. 139-168.

try kicking with one leg and then another and then try waving an arm, watching the toy's responses to all of their actions. And if you take them out of the crib and then put them back in again, they will immediately move the correct limb to make the toy move. Finally, in a groundbreaking paper published in 1996, Jenny Saffran showed that babies as young as eight months old are sensitive to statistical patterns.[80] At least by the time they are two and a half, and probably earlier, children become capable of using probabilities to make genuine inferences.[81] It appears that children, in the same way that they are programmed to learn language, are also programmed to learn about the metaphysical structure of the world.

Next, there is the inclination towards moral or practical knowledge, which some have called a universal moral grammar because it seeks to describe the nature and origin of moral knowledge by appealing to concepts and models used in the study of linguistic knowledge.[82] Developmental psychologists have recently discovered that the intuitive jurisprudence of young children is complex. For example, three to four year old children distinguish two acts that bring about the same end by examining the intent of the acting person.[83] They are also able to distinguish genuine violations of the moral code, like theft,

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[80] Jenny R. Safran, Richard N. Aslin, and Elissa L. Newport, "Statistical Learning by 8-month-old Infants," *Science* 274 (1996): 1926-1928.

[81] For a recent research paper, see Alexa R. Romberg and Jenny R. Saffran, "Expectancy learning from probabilistic input by infants," *Front. Psychol.* 3 (2013): 610.

[82] For a review, see John Mikhail, "Universal Moral Grammar: Theory, Evidence, and the Future," *Trends Cogn Sci.* 11 (2007): 143-152. For a critical response, see E. Dupoux and P. Jacob, "Universal moral grammar: a critical appraisal," *Trends Cogn Sci.* 11 (2007): 373-378.

[83] For discussion, see the following papers: T. Behne et al., "Unwilling Versus Unable: Infants' Understanding of Intentional Action," *Dev Psychol* 41 (2005): 328-337; M. Tomasello et al., "Understanding and Sharing Intentions: The Origins of Cultural Cognition," *Behav Brain Sci* 28 (2005): 675-691; and K.M. Olineck and D. Poulin-Dubois,

from violations of social conventions, like wearing pajamas to school.[84] *In toto*, these discoveries suggest that human beings are born with inclinations towards sure knowledge, both metaphysical and moral, which facilitates their self-preservation, their wellbeing, and their life with others.

Finally, and frankly, most surprising to me when I first read about it, there is data that suggests that infants are inclined towards knowledge of God. In other words, though it remains controversial, there is evidence that suggests that children are intuitive theists.[85] Experiments suggest that they are predisposed towards believing that the world is an artifact of non-human design. In support of this proposal, there is data that shows that young children have a tendency to embrace teleological explanations that reason about nature in terms of purpose and design. They have a default orientation towards creationist accounts of the origins of the world, whether or not they were raised in religious families. Strikingly, it appears that theists are begotten and not made.

To summarize, the systems perspective not only allows us to recover the teleological dynamism of the living organism, an end-directed ordering most obvious during the development of the plant or the animal, but also permits us to identify those pre-elicited species-normative inclinations that are indicative of the natural ends of the

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"Infants' understanding of intention from 10 to 14 months: Interrelations among violation of expectancy and imitation tasks," *Infant Behav Dev.* 32 (2009): 404-415.

[84] For discussion, see Charles C. Helwig and Elliot Turiel, "Children's Social and Moral Reasoning," in *Blackwell Handbook of Childhood Social Development*, ed. Peter K. Smith and Craig H. Hart (Oxford: Blackwell Publishers, 2002), pp. 475-490. For a recent review, see J. Perner and J. Roessler, "From infants' to children's appreciation of belief," *Trends Cogn Sci.* 16 (2012): 519-525.

[85] Deborah Kelemen, "Are Children 'Intuitive Theists'?" *Psychol Sci* 15 (2004): 295-301. For extensive discussion and more references to the scientific literature, see Justin L. Barrett, *Born Believers: The Science of Children's Religious Belief* (New York: Free Press, 2012).

human organism. Shaped by evolution, these connatural ends are adaptations that perfect the human animal.

Responding to the Early Modern Scientific Objections to Substantial Forms:

As we saw earlier in this chapter, three of the most influential philosopher-scientists of the seventeenth century raised four major objections to substantial forms. First, they argued that substantial forms were obscure and occult, and as such, are not really real. Today, systems biologists are working to mathematically describe an organism's state space with a series of differential equations that can be modeled *in silico*. As such, we can respond to this early modern objection by proposing that an organism's substantial form is as real as its state space is real. It is as real as the circle described by the equation, $x^2 + y^2 = 5$, is real.

Second, the early modern philosopher-scientists argued that substantial forms are not needed for genuine scientific explanation. In their view, substantial forms do not have any explanatory power. Today, systems biologists have discovered that we need to understand the state space of an organism to properly explain its emergent properties. In doing so, they have denied the seventeenth century claim that organisms are like artifacts and that artifacts are like organisms. They are not equivalent because artifacts do not manifest emergent properties like organisms do. Thus, a mite is not like an engine. A kangaroo is not like a clock. As such, we can respond to this early modern objection by proposing that there is a legitimate place in scientific explanation for substantial forms now understood as an organism's state space. Substantial forms are needed to explain life in a way they are not needed to explain clocks.

Third, Locke specifically argued that chimeric animals that appear to straddle species barriers, his "monsters" and "changelings," undermine the doctrine of substantial form. Today, developmental biologists agree that each species has a distinctive developmental trajectory that moves an embryo from fertilization to maturity. In the jargon of systems theory, each species has a robust species-typical state space that explains the behavior of the species-typical living network. Monsters represent unstable systems that fall on the margins of the stable regions of an organism's species-typical state space, in the jargon of systems theory, regions at the periphery of the living system's basin of attraction. This is why these monsters and changelings often die at birth or soon after. Understood as systems, they are unstable. They are not robust. Their existence, however, does not threaten either the field of systems biology or the notion of a state space. As such, we can respond to this early modern objection by proposing that chimeric and deformed organisms can be easily accommodated within a substantial perspective that includes a robust notion of substantial forms, understood here as that organism's state space.[86]

Finally, Roger Bacon appeals to reversible chemical reactions to challenge the doctrine of substantial forms. Though a comprehensive discussion of how matter-form language can be rehabilitated in contemporary chemistry is beyond the scope of this

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[86] Note that in an Aristotelian philosophy of nature, the perfection of a substance depends on the interaction between form and matter. Within this framework, a congenitally deformed "monster" can be accommodated not by appealing to form but by pointing to matter that is not properly disposed to receive its form. In the same way, death of the organism can be explained by pointing to matter's loss of its predisposition to form. From the perspective of systems theory, death results when the system fails to maintain its robustness. The predisposition of Aristotelian matter is revealed in the robustness of a living system.

chapter, there is evidence that molecules have properties that cannot be attributed to the properties of the individual atoms – for instance, the hybrid sp^3 orbitals that are found in organic molecules – and as such would have to be attributed to the whole. This would point to substantial forms in these compounds. Scientific observations like this would begin respond to early modern chymical objections to classical hylomorphism.

Conclusion

The alleged refutation of classical hylomorphism during the early modern period has undermined the legitimacy of matter-form language, even used analogically, in theology. However, with the hylomorphic theory described in this chapter, we now have a conceptual framework that begins to validate the hylomorphic analysis in moral theology that was the subject of four chapters of this thesis. When theologians are asked to identify the prime analogate for the matter-form language used in moral discourse, they can now point to the actuality that is the state space of a living system and the potency that the living network has actualized.

CONCLUSION

The last few decades have witnessed a revival of interest in an Aristotelian and Thomistic virtue ethics.[1] A striking characteristic of this revival, however, is its lack of engagement with any robust biological account of human nature.[2] Why is this so? Though there are probably more than a few reasons for this lacuna, one of the most significant is the claim that developments in modern science have made a teleological account of human nature intellectually untenable. For instance, Alasdair MacIntyre, universally acknowledged as one of the most significant advocates of an Aristotelian-Thomistic tradition today, initially rejected what he called Aristotle's metaphysical biology for this reason.[3] Instead, he adopted a teleological account of the human agent that was grounded in sociology rather than in biology. Later in his career, however, MacIntyre admitted his mistake by acknowledging a need to recover both a metaphysics of and a biology of human nature:

> In *After Virtue* I had tried to present the case for a broadly Aristotelian
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> account of the virtues without making use of or appeal to what I called
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> Aristotle's metaphysical biology…But I had not learned from Aquinas that

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[1] For an introductory overview of contemporary virtue ethics, see Rosalind Hursthouse, "Virtue Ethics," *The Stanford Encyclopedia of Philosophy* (Fall 2013 Edition), Edward N. Zalta (ed.). Available at http://plato.stanford.edu/archives/fall2013/entries/ethics-virtue/. Last accessed on January 1, 2015.

[2] For a recent exception, see Rosalind Hursthouse, "Human Nature and Aristotelian Virtue Ethics," *Royal Institute of Philosophy Supplement* 70 (2012): 169-188. Also see the insightful and influential work on ethical naturalism by Philippa Foot: *Natural Goodness* (Oxford: Oxford University Press, 2003).

[3] Alasdair MacIntyre, *After Virtue*, 3rd ed. (Notre Dame: University of Notre Dame Press, 2005), pp. 50-61. For discussion, see Marian Kuna, "MacIntyre's Search for a Defensible Aristotelian Ethics and the Role of Metaphysics," *Analyse & Kritik* 30 (2008): 103-119.

my attempt to provide an account of the human good purely in social terms, in terms of practices, traditions, and the narrative unity of human lives, was bound to be inadequate until I had provided it with a metaphysical grounding…What I also came to recognize was that my conception of human beings as virtuous or vicious needed not only a metaphysical, but also a biological grounding, although not an especially Aristotelian one.[4]

Accordingly, in his last major work, *Dependent Rational Animals,* MacIntyre attempted to reground his account of a virtue ethics on the animality that we share with dolphins and other animals. However, in my view, it is not clear how this account of what MacIntyre calls the virtues of acknowledged dependence is properly a *metaphysical* biology that locates and establishes species-specific behaviors in species-specific biological inclinations.

In this thesis, I have reconstructed an account of St. Thomas's analogical use of hylomorphic terminology in his moral theology because I am convinced that to be aware of this feature of his work is to be equipped to interrogate, to penetrate, and to advance his theological synthesis in conversation with other rival intellectual traditions. The four case studies discussed in the chapters that make up the heart of this thesis engaged with philosophical and theological realities – the human act, the passions, the acquired and the infused virtues, and the spoken falsehood – which are bound up with the moral life.

However, my rehabilitation and defense of St. Thomas's hylomorphism in light of a 21st century systems biology would also allow virtue ethics to recover a *bona fide*

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[4] MacIntyre, *After Virtue,* 3rd ed., pp. x-xi.

metaphysical biology to explain the virtue and the vice of the human agent. Recently, critics of virtue ethics have unexpectedly emerged from the empirical field of social psychology. For example, in his book, *Lack of Character*, John Doris argues that recent findings of social psychology have revealed that there is no basis for the claim that human character is stable and reliable.[5] According to this situationist critique, what governs moral behavior is the situation in which the human agent finds himself rather than his character.

In response, a systems account of human nature would allow virtue ethicists to respond to the situationist challenge by situating character within biology. An agent's character would be an emergent property mediated by his intellect and by his will that flows from the connatural inclinations shaped by his state space. Or to put it in classical Thomistic terminology, the virtues would emerge from the soul. However, how these virtues are actualized in their proper acts would depend on both cognitive and sense knowledge that can be influenced by the agent's surroundings, hence the influence of the particularities of a given situation. But expanding upon this proposal will have to be the subject of another work.

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[5] John Doris, *Lack of Character* (Cambridge: Cambridge University Press, 2002). For selected defenses of virtue ethics against the situationist challenge posed by Doris, see Robert C. Solomon, "Victims of Circumstances? A Defense of Virtue Ethics in Business," *Bus Ethics Q* 13 (2003): 43-62; and Julia Annas, "Comments on John Doris' Lack of Character," *Philos Phenomenol Res* 73 (2005): 636-647. Also see, Anna Marmodoro, "Moral Chracter *versus* Situations: an Aristotelian contribution to the debate," *J Ancient Philosophy* 5 (2011): 1-24. For a more recent recounting of the situationist critique, see Mark Alfano, *Character as Moral Fiction* (Cambridge: Cambridge University Press, 2013).

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White, Kevin. "Individuation in Aquinas's *Super Boetium De Trinitate*, Q.4" *American Catholic Philosophical Quarterly* 69 (1995): 543-556.

_____. "The Passions of the Soul (Ia IIae, qq. 22-48)" in *The Ethics of Aquinas,* ed. Stephen J. Pope (Washington, D.C.: Georgetown University Press, 2002), pp. 103-115.

White, Meredith and Nicanor Austriaco, O.P., "The Use of Pre-term Induction in Crisis Pregnancies: The Drowning Lifeguard-Drowning Swimmer Case," *Angelicum*, in press.

Wippel, John. *Metaphysical Themes in Thomas Aquinas II* (Washington, DC: The Catholic University of America Press, 2007).

_____. *The Metaphysical Thought of Thomas Aquinas* (Washington, D.C.: The Catholic University of America Press, 2000).

Wolter, Allan B. "The Ockhamist Critique," in *The Concept of Matter in Greek and Medieval Philosophy*, ed. E. McMullin (Notre Dame, IN: University of Notre Dame Press, 1965), pp. 124-146.

Wuellner, Bernard, S.J. *Summary of Scholastic Principles* (Chicago: Loyola University Press, 1956).

Yearley, Lee H. "The Nature-Grace Question in the Context of Fortitude," *The Thomist* 35 (1971): 557-580.

Déclaration sur l'honneur

Par ma signature, j'atteste avoir rédigé personnellement ce travail écrit et n'avoir utilisé que les sources et moyens autorisés, et mentionné comme telles les citations et paraphrases.

J'ai pris connaissance que le comportement scientifique délictueux selon les directives de l'Université de Fribourg* est sanctionné.

Prénom :   Nicanor Pier Giorgio   Nom :   AUSTRIACO

Nr. SIUS :

Lieu et date :   Signature :

1 Cunningham Square,
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March 19, 2015
Solemnity of St. Joseph

* Directives de l'Université de Fribourg du 13 mai 2008 concernant la procédure de prononcé des sanctions disciplinaires selon l'art. 101 des Statuts du 31 mars 2000 de l'Université de Fribourg dans les cas de violation des règles de l'intégrité scientifique lors de la rédaction de travaux pendant la durée de la formation :
http://www.unifr.ch/rectorat/reglements/pdf/1_1_15.pdf

Art. 2: «Il y a comportement scientifique délictueux lorsqu'une violation des règles de l'intégrité scientifique est constatée, notamment quand, dans un travail écrit, l'auteur-e fait siens les travaux et les connaissances d'une autre personne (plagiat), lorsqu'un travail écrit rédigé par une tierce personne autre que l'auteur-e est déposé (ghostwriting) ou lorsque de fausses indications sont faites intentionnellement ou par négligence grave.»

Cette déclaration doit être jointe à tout travail écrit accessible publiquement (Master, Licence, Doctorat, Habilitation). Sans cette déclaration le travail ne sera pas admis.

REV. NICANOR PIER GIORGIO AUSTRIACO, OP, PH.D., S.T.D.

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ACADEMIC AND PROFESSIONAL EXPERIENCE

Associate Professor of Biology (with Tenure), 2011 – Present**.**
Providence College, Providence, RI.

Instructor of Theology, 2005 – Present.
Providence College, Providence, RI.

        LAB HOMEPAGE: http://www.austriacolab.com

Catholic Chaplain, 2014 – 2015
Brown University, Providence, RI.

Assistant Professor of Biology, 2005 – 2011.
Providence College, Providence, RI.

Visiting Research Scholar, April/May 2014.
The Anscombe Centre for Bioethics, University of Oxford, Oxford, UK.

Consultant, Catholic Bishops' Conference of the Philippines, Manila**,** 2014 – Present.
Committee on Bioethics.

Consultant, St. Joseph Health Services of Rhode Island, Providence, RI, 2010 – Present.
Our Lady of Fatima Hospital Medical Ethics Committee.

Consultant, United States Conference of Catholic Bishops, Washington, DC, 2005 – 2007.
Committee on Science and Human Values.

Ad Hoc **Consultant in Bioethics, Congregation for the Doctrine of the Faith**, Vatican City.

Ad Hoc **Consultant in Bioethics, United States Conference of Catholic Bishops**, Washington, DC.

Ad Hoc **Consultant in Bioethics, Canadian Conference of Catholic Bishops**, Ottawa, Canada

Ad Hoc **Consultant in Bioethics, Diocese of Providence**, Providence, RI.

Board Member, Eastern Colleges Science Conference, 2010 – Present.

Scientific Advisor, Rhode Island Right to Life, Providence, RI, 2008 – Present.

Scientific Advisor, National Catholic Bioethics Center, Philadelphia, PA, 2001 – 2015.

Staff Ethicist, Dominican Friars Health Care Ministry of New York, New York, NY, 2006 – 2012.

Current Research Grants

Principal Investigator, 2014 – 2017
National Institute of General Medical Sciences (NIGMS) of the National Institutes of Health (NIH)
R15 GM110578-01: "Genetic Dissection of Yeast Bax Inhibitor Function in UPR and Calcium Signaling."
TOTAL AMOUNT: USD 257,049.00

Principal Investigator, 2013 – 2015
BioLogos Foundation Evolution and Christian Faith (ECF) Grant: "Disputed Questions in Evolutionary Creation: Thomistic Responses for the Catholic Faithful and Other Curious Minds"
TOTAL AMOUNT: USD 23,000.00

Investigator, Summer 2015
National Institutes of Health (NIH) Grant 2 P20 GM103430 to the Rhode Island INBRE Program
NIH-Rhode Island IDeA Network of Biomedical Research Excellence (INBRE) Program
Summer Undergraduate Research Fellows (SURF) Program:
"Genetic characterization of programmed cell death in aneuploid yeast cells"

Previous Research Grants

Principal Investigator, 2010-2013
NIGMS R15 GM094712-01: "Genetic Identification of Sulforaphane's Mechanism of Action in Yeast Cell Death."
TOTAL AMOUNT: USD 310,273.00

Principal Investigator, 2010-2013
National Science Foundation (NSF) MRI-R2: "Acquisition of a Laser Scanning Confocal Microscope for Research and Training in
Biology at Providence College"
TOTAL AMOUNT: USD 266,261.00

Investigator, 2005 – 2014
National Institutes of Health (NIH) Grant 2 P20 RR016457 to the Rhode Island INBRE Program
NIH-Rhode Island IDeA Network of Biomedical Research Excellence (INBRE) Program
Research Projects:
"Genetic Characterization of Programmed Cell Death in the Budding Yeast, *Saccharomyces*"
[2005-2008]
"Genetic Characterization of *UTH1* and *BXI1*, Two Genes Involved in Yeast Programmed Cell Death"
[2009-2014]

Journal Editor

Microbial Cell (founding member of board of academic editors: www.microbialcell.com)

Ad-Hoc Manuscript Reviewer

National Catholic Bioethics Quarterly   *PLoS ONE*
The Linacre Quarterly   *Mechanisms of Aging and Development*
The Thomist   *The Annals of Pharmacotherapy*
International Journal of Molecular Sciences   *Science and Theology*
International Journal of Medicinal Mushrooms   *FEMS Yeast Research*
Nova et Vetera

- *Genetics Essentials: Concepts and Connections* by Benjamin Pierce, 3rd edn. (WH Freeman)
- *Biological Sciences* by Scott Freeman, 4th edn. (Benjamin Cummings/Pearson)
- *Visualizing Human Biology* by Kathleen Anne Ireland, 2nd edn. (Wiley)
- *Genetic Analysis: An Integrated Approach* by Mark F. Sanders and John L. Bowman, 1st edn. (Pearson)
- *Lewin's Essential GENES* by Jocelyn E. Krebs, Elliott S. Goldstein, and Stephen T. Kilpatrick, 3rd edn. (Jones Bartlett Publishing)

Courses Taught at Providence College

BIO 103: General Biology I
BIO 122: Human Biology
BIO 127: Genes and Gender
BIO 200: Cellular and Molecular Biology
BIO 308: Modern Genetics
BIO 412: Microbial Physiology
BIO 475: Advanced Topics Seminar in the Biology of Cancer
BIO 475: Advanced Topics Seminar in the Biology of Aging
HON 480: Honors Colloquium – Science and Religion
THL 240: Theology of St. Thomas Aquinas
THL 372: Contemporary Moral Problems [Social, Sexual, and Medical Ethics]
THL 410: Contemporary Thomistic Moral Theology

EDUCATION
University of Fribourg, Fribourg, Switzerland
Doctorate in Sacred Theology (S.T.D.), *magna cum laude*, May 2015
Dissertation Title: *The Hylomorphic Structure of Thomistic Moral Theology from the Perspective of a Systems Biology*
Dissertation Supervisor: Rev. Michael Sherwin, O.P., Ph.D., Professor of Moral Theology

Dominican House of Studies, Washington, DC
Licentiate in Sacred Theology (S.T.L.), *summa cum laude*, May 2005.
Thesis: *Life and Death from the Systems Perspective: A Thomistic Bioethics for a Post-Genomic Age*

Master of Divinity, *summa cum laude*, May 2003
Bachelor in Sacred Theology (S.T.B.)*, summa cum laude*, May 2003

Ludwig Institute for Cancer Research/University College London, London, UK
Fellow of the International Human Frontier Science Program, 1996-1997
Mentor: Parmjit Jat, Ph.D., Professor of Neurodegenerative Disease

Massachusetts Institute of Technology, Cambridge, MA
Doctor of Philosophy (Biology), June 1996.
Thesis: UTH1 *and the Genetic Control of Aging in the Yeast,* Saccharomyces
Mentor: Leonard P. Guarente, Ph.D., Novartis Professor of Biology
Pre-doctoral Fellow of the Howard Hughes Medical Institute (HHMI): 1990-1996

University of Pennsylvania, Philadelphia, PA
Bachelor of Science in Engineering (Bioengineering), *summa cum laude*, May 1989
Thesis: *Vertebral Body Densitometry Using Interactive Image Analysis*
Mentors: Denis S. Drummond, M.D., and John L. Williams, Ph.D.

Honors and Awards

Providence College Committee on Aid to Faculty Research (CAFR) Grant, 2006-2007; 2010-2011.
Calihan Religion and Liberty Academic Fellowship awarded by the Acton Institute, 2004-2005
Bishop Thomas V. Daily Vocations Scholarship from the Knights of Columbus, 2003-2004
Second Place Press Award, Best Feature Article – Scholarly, Catholic Press Association
     of the United States and Canada, 2003
Summer Ministry Scholarship of the Blessed Margaret Costello Guild, Columbus, OH, 2002
International Human Frontier Science Program Long Term Fellowship, 1996-1997
Howard Hughes Medical Institute (HHMI) Pre-doctoral Fellowship in the Biomedical Sciences, 1990-1995
Dean's List, 1985-1989
Benjamin Franklin Scholar/General Honors Program, 1985-1989
John P. Lyet Scholarship for Academic Excellence
Hospitality Services of the University of Pennsylvania Scholarship
Tau Beta Pi, The National Engineering Honor Society
Pi Mu Epsilon, The National Math Honor Society
Sigma Xi, The Scientific Research Honor Society
1989 Nassau Grant for Undergraduate Research Award
1987 Best Article Award from the National Association of Engineering College Magazines

PUBLICATIONS

Books

Austriaco, N.P.G., O.P. *Biomedicine & Beatitude: An Introduction to Catholic Bioethics* (Washington, DC: The Catholic University of America Press, 2011)
   *** Named a 2012 "Outstanding Academic Title" by *Choice* Magazine (American Library Assn.)***
      ACADEMIC BOOK REVIEWS: *National Catholic Bioethics Quarterly, Theological Studies, Homiletics and Pastoral Review, New Blackfriars, Heythrop Journal, Catholic Social Science Review, The Thomist, Reviews in Religion & Theology* Subject of a symposium in a special issue of *Nova et Vetera*, Volume 12, Issue 2, Spring 2014. A second edition of this monograph is in preparation.

Booklet

Austriaco, N.P.G., O.P. *Understanding Stem Cell Research: Controversy and Promise* (New Haven, CT: Knights of Columbus, 2008; updated 2010). This 30-page booklet is part of the *Veritas* Series published by the Knights of Columbus.

Peer-Reviewed Work

SCIENTIFIC AND ENGINEERING PAPERS (Asterisks Indicate Undergraduate Co-authors)

Laprade, D.*, Brown, M.*, McCarthy, M.*, Ritch, J., and **Austriaco, N.** (2015) "Filamentation Protects Candida albicans from Amphotericin B-Induced Programmed Cell Death via a Mechanism Involving the Yeast Metacaspase, MCA1," *Microbial Cell*, manuscript in revision.

Pope, W.H. et al. (2015) "Whole genome comparison of a large collection of mycobateriophages reveals a continuum of phage genetic diversity," *eLife* 4:e06416. [Publication describing the genomes of numerous phages sequenced as part of the HHMI-SEA Phages Hunters Program. Several of the phages were isolated and characterized by me and my students at Providence College.]

Chin, C.*, Donaghey, F.*, Helming, K.*, McCarthy, M.*, Rogers, S.*, and **Austriaco, N.** (2014) "Deletion of *AIF1* but not of *YCA1/MCA1* protects *Saccharomyces cerevisiae* and *Candida albicans* cells from caspofungin-induced programmed cell death," *Microbial Cell* 1: 58-63.

Lin, S-J and **Austriaco, N.** (2014) "Aging and Cell Death in the Other Yeasts, *Schizosaccharomyces pombe* and *Candida albicans*," *FEMS Yeast Research,* 14:119-135.

Cascio, V.*, Gittings, D.*, Merloni, K.*, and **Austriaco, N.** (2013) "S-Adenosyl-L-Methionine Protects the Probiotic Yeast *Saccharomyces boulardii*, from Acid-Induced Cell Death," *BMC Microbiology* 13:35.

Austriaco, N. (2012) "Endoplasmic Reticulum Involvement in Yeast Cell Death," *Front. Oncol.* 2:87.
Cebulski, J.*, Malouin, J.*, Pinches, N.*, Cascio, V.*, and **Austriaco, N.** (2011) "Yeast Bax Inhibitor, Bxi1p, is an ER-localized Protein that Links the Unfolded Protein Response and Programmed Cell Death in *Saccharomyces cerevisiae*," *PLoS ONE* 6(6): e20882. doi:10.1371/journal.pone.0020882

Ritch, J.J.*, Davidson, S.M.*, Sheehan, J.*, and **Austriaco, N.** (2010) "The Saccharomyces SUN Gene, *UTH1*, is Involved in Cell Wall Biogenesis," *FEMS Yeast Research* 10(2): 160-178.

Austriaco, N.R., Jr. and L. Guarente. (1997) "Changes of telomere length cause reciprocal changes in the lifespan of mother cells in *Saccharomyces cerevisiae*," *Proc. Natl. Acad. Sci. USA* 94: 9768-9772.

Austriaco, N.R., Jr. (1996) "To Bud Until Death: The Genetics of Aging in the Yeast, *Saccharomyces*," *Yeast* 12: 623-630.

Kennedy, B.K., **Austriaco, N.R., Jr.,** Zhang J., and L. Guarente. (1995) "Mutation in the Silencing Gene *SIR4* Can Delay Aging in *S. cerevisiae*" *Cell* 80: 485-496

Kennedy, B.K., **Austriaco, N.R., Jr.,** and L. Guarente. (1994) "Daughter Cells of *Saccharomyces cerevisiae* from Old Mothers Display a Reduced Life Span," *J. Cell Biol.* 127: 1985-1993

Austriaco, N.R. Jr., J.L.Williams, and D. S. Drummond. (1991) "Trabecular Bone Densitometry Using Interactive Image Analysis," *J. Biomed. Engr.* 13:481-484.

PHILOSOPHICAL AND THEOLOGICAL PAPERS & CHAPTERS

Austriaco, N. "Abortion Shame, Abortion Shaming, and the Reintegrative Mercy of God (Evangelium vitae, §99)," *Nova et Vetera*, in press.

Austriaco, N. "Human Nature as Normative Concept: Relevance for Health Care," in *Handbook of the Philosophy of Medicine,* ed. Thomas Schramme and Steven Edwards (New York: Springer, in press).

White, M.*, and **Austriaco, N.** (2015) "The Use of Pre-term Induction in Crisis Pregnancies: The Drowning Lifeguard-Drowning Swimmer Case," *Angelicum*, in press.

Austriaco, N. (2015) "The Brain Dead Patient is Still Sentient: A Further Reply to Patrick Lee and Germain Grisez," *Journal of Medicine and Philosophy*, in press.

Austriaco, N. (2015) "A Philosophical Assessment of TK's Autopsy Report: Implications for the Debate Over the Brain Death Criteria," *Linacre Quarterly*, in press.

Austriaco, N. (2015) "A Fittingness Argument for the Evolution of *Homo sapiens*," *Science and Theology,* in press.

Sullivan, E., and **Austriaco, N.** (2015) "A Virtue Analysis of Recreational Marijuana Use," *Linacre Quarterly*, in press.

Austriaco, N. (2015) "A Fittingness Argument for the Historicity of the Fall of *Homo sapiens*," *Nova et Vetera* 13: 651-667.

Cataldo, Peter J., William Cusick, Becket Gremmels, Cornelia Graves, Elliott Louis Bedford, **Nicanor Pier Giorgio Austriaco, O.P.**, Paul Burstein, Ron Hamel, John Hardt, Sarah Hetue Hill, Mark Repenshek, Cherie Sammis, John Paul Slosar, and Dan O'Brien. (2015) "Deplantation of the Placenta in Maternal-Fetal Vital Conflicts," *National Catholic Bioethics Quarterly* 15: 241-250.

Austriaco, N. et al. (2014) "Medical Intervention in Cases of Maternal-Fetal Vital Conflicts: A Statement of Consensus," *National Catholic Bioethics Quarterly* 14: 477-489.

Austriaco, N. (2014) "A Response to My Colleagues," *Nova et Vetera* 12: 565-574. [My contribution to a special issue of *Nova et Vetera* dedicated to my book, *Biomedicine and Beatitude*.]
Austriaco, N. (2014) "Preaching Catholic Bioethics with Joy and Mercy," *National Catholic Bioethics Quarterly* 14: 217-226.

Austriaco, N. (2013) "The Specification of Sex/Gender in Human Beings: A Thomistic Analysis," *New Blackfriars* 94 (1054): 701-715.

Austriaco, N. (2012) "On Ovarian Tissue Transplantation and the Metaphysics of the Embodied Self: A Response to Lauritzen and Vicini," *Theological Studies* 73 (2): 442-449.

Austriaco, N. (2012) "Personalized Genomic Educational Testing: What Do the Undergrads Think?" *American Journal of Bioethics* 12(4): 43-45.

Austriaco, N. (2011) "Abortion in a Case of Pulmonary Arterial Hypertension: A Test Case for Two Rival Theories of Human Action," *National Catholic Bioethics Quarterly* 11(3): 503-518.

Austriaco, N. (2011) "Complete Moles and Parthenotes are Not Organisms," in *Is This Cell a Human Being?* ed. Antoine Suarez and Joachim Huarte (New York: Springer), pp. 45-54.

Austriaco, N. (2011) "Living the Natural Law and Respecting the Ecological Good" in *Green Discipleship: Catholic Theological Ethics & the Environment*, ed. Tobias Winright (Winona, MN: Anselm Academic), pp. 150-162.

Austriaco, N. (2011) "The Soul and Its Inclinations: Recovering a Metaphysical Biology with the Systems Perspective," in *The Human Animal: Procreation, Education, and the Foundations of Society,* Proceedings of the X Plenary Session, 18-20 June 2010, The Pontifical Academy of St. Thomas Aquinas (Vatican City: The Pontifical Academy of St. Thomas Aquinas, 2011), pp. 48-63.

Austriaco, N. (2010) "Understanding Sexual Orientation as a *Habitus*: Reasoning from the Natural Law, Appeals to Human Experience, and the Data of Science," in *Leaving and Coming Home: New Wineskins for Catholic Sexual Ethics*, ed. David Cloutier (Eugene, OR: Cascade Books/Wipf & Stock), pp. 101-118.

Austriaco, N. (2010) "Using Morally Controversial Human Cell Lines After *Dignitas Personae*," *National Catholic Bioethics Quarterly* 10(2): 265-272.

Austriaco, N. (2009) "In Defense of the Loss of Bodily Integrity as a Criterion for Death: A Response to the Radical Capacity Argument," *The Thomist* 73 (2009): 647-659.

Austriaco, N. (2009) "Presumed Consent for Organ Procurement: A Violation of the Rule of Informed Consent?" *National Catholic Bioethics Quarterly* 9(2): 245-252.

Austriaco, N. (2009) "The Intelligibility of Intelligent Design?" *Angelicum* 86: 103-111.

Austriaco, N. and M.G. Loudin* (2008) "Understanding the Controversy Over Intelligent Design and the Acceptability of Intelligent Causality in Science," *Forum Teologiczne* 9: 29-39.

Austriaco, N. (2007) "Is Plan B an Abortifacient? A Critical Look at the Scientific Evidence," *National Catholic Bioethics Quarterly* 7 (4): 703-707.

Austriaco, N. (2007) "An Argument Against Embryo Adoption" in Urged On By Christ: Proceedings of the Twenty-First Workshop for Bishops, ed. E. Furton (Philadelphia, PA: The National Catholic Bioethics Center), pp. 51-60.

Austriaco, N. (2006) "On the Catholic Vision of Conjugal Love and the Morality of Embryo Transfer," in *Human Embryo Adoption: Biotechnology, Marriage, and the Right to Life*, ed. E. Furton and T. Berg, L.C., (Philadelphia, PA: The National Catholic Bioethics Center), pp. 115-134.

Austriaco, N. (2006) "The Moral Case for ANT-Derived Pluripotent Stem Cell Lines," *National Catholic Bioethics Quarterly* 6 (3): 517-537.

Austriaco, N. (2006) "How to Navigate Species Boundaries: A Reply to the *American Journal of Bioethics*," *National Catholic Bioethics Quarterly* 6 (1): 61-71.

Austriaco, N. (2005) "Debating Embryonic Dignity in a Liberal Society," *Stem Cell Reviews* 1 (4): 305-308.

Austriaco, N. (2005) "Are Teratomas Embryos or Non-Embryos? A Criterion for Oocyte-Assisted Reproduction," *National Catholic Bioethics Quarterly* 5(4): 697-706.

Arkes, H, **Austriaco, N.,** et al. (2005) "Production of pluripotent stem cells by oocyte-assisted reprogramming: joint statement with signatories," *National Catholic Bioethics Quarterly* 5(3): 579-583.

Austriaco, N. (2005) "Altered Nuclear Transfer: A Critique of a Critique," *Communio* 32 (2005): 172-176.

Austriaco, N. (2005) "On Reshaping Skulls and Unintelligible Intentions," *Nova et Vetera*, 3(1): 81-99.

Austriaco, N. (2004) "Immediate Hominization from the Systems Perspective," *National Catholic Bioethics Quarterly*, 4(4): 719-738.

Austriaco, N. (2003) "In Defense of Double Agency in Evolution: A Response to Five Modern Critics," *Angelicum* 80: 947-966.

Austriaco, N. (2003) "Is the Brain Dead Patient *Really* Dead?" *Studia Moralia* 41(2): 277-308.

Austriaco, N. (2003) "The Pre-implantation Embryo Revisited: Two-celled Individual or Two Individual Cells?" *Linacre Quarterly* 70(2): 121-126.

Austriaco, N. (2002) "On Static Eggs and Dynamic Embryos: A Systems Perspective" *National Catholic Bioethics Quarterly* 2(4): 659-683.

Austriaco, N. (2001) "Genetic Engineering, Post-Genomic Ethics, and the Catholic Tradition," *National Catholic Bioethics Quarterly* 1(4): 497-506.

Austriaco, N. (2000) "Metaphysics and Catholic Bioethics," *Ethics and Medics* 25 (11): 3-4.

Austriaco, N. (1999) "Causality within complexity," *J. Interdisciplinary Studies* 11: 141-156.

PEER-REVIEWED ENCYCLOPEDIA ENTRIES

"Homunculus" in *New Catholic Encyclopedia Supplement 2012-13: Ethics and Philosophy.* Ed. Robert L. Fastiggi. Vol. 2. (Detroit: Gale, 2013), pp. 720-721.

"Hylomorphism" in *New Catholic Encyclopedia Supplement 2012-13: Ethics and Philosophy.* Ed. Robert L. Fastiggi. Vol. 2. (Detroit: Gale, 2013), pp. 727-728. (updated from an article written by Rev. William A. Wallace, O.P.)

"Brain Death" in *New Catholic Encyclopedia, Supplement 2009.* Ed. Robert L. Fastiggi, Joseph W. Koterski, S.J., and Frank J. Coppa. (Detroit: Gale, 2009), pp. 109-113.

"Cloning" in *New Catholic Encyclopedia, Supplement 2009.* Ed. Robert L. Fastiggi, Joseph W. Koterski, S.J., and Frank J. Coppa. (Detroit: Gale, 2009), pp. 161-164.

"Assisted Suicide" in *Encyclopedia of Catholic Social Thought, Social Science, and Social Policy.* Ed. Michael L. Coulter, Stephen M. Krason, Richard S. Myers and Joseph A. Varacalli. (Lanham, MD: Scarecrow Press, 2007), pp. 58-59.

"Sterilization" in *Encyclopedia of Catholic Social Thought, Social Science, and Social Policy.* Ed. Michael L. Coulter, Stephen M. Krason, Richard S. Myers and Joseph A. Varacalli. (Lanham, MD: Scarecrow Press, 2007), pp. 1032-1033.

Scholarly Book Reviews

Steven Jensen, *The Ethics of Organ Transplantation* (Washington, DC: The Catholic University of America Press, 2011) in *The Thomist* 77(3): 487-491.

Martin Rhonheimer, *Vital Conflicts in Medical Ethics: A Virtue Approach to Craniotomy and Tubal Pregnancies* (Washington, DC: The Catholic University of America Press, 2009) in *National Catholic Bioethics Quarterly* 10(1): 201-206.

Guiseppe Buonocore and Carlo V. Bellieni, eds., *Neonatal Pain: Suffering, Pain, and Risk of Brain Damage in the Fetus and Newborn* (Milan: Springer, 2007) in *National Catholic Bioethics Quarterly* 9(4): 793-795. [Coauthored with Katherine Helming*]

Michael Ruse, *The Evolution-Creation Struggle* (Cambridge, MA: Harvard University Press, 2005) in *The Thomist* 71(3): 487-490. [Coauthored with Michael G. Loudin*]

Alister E. McGrath, *A Scientific Theology: Theory* (Grand Rapids, MI: Wm. B. Eerdmans Publishing Company, 2003) in *National Catholic Bioethics Quarterly* 5 (4): 849-851.

David F. Kelly, *Contemporary Health Care Ethics* (Washington, DC: Georgetown University Press, 2004) in *National Catholic Bioethics Quarterly* 5 (2): 425-428.

Alister E. McGrath, *A Scientific Theology: Reality* (Grand Rapids, MI: Wm. B. Eerdmans Publishing Company, 2002) in *National Catholic Bioethics Quarterly* 5(1): 203-205.

Alister E. McGrath, *A Scientific Theology: Nature* (Grand Rapids, MI: Wm. B. Eerdmans Publishing Company, 2001) in *National Catholic Bioethics Quarterly* 3(4): 861-862

Bernard Lo, *Resolving Ethical Dilemmas: A Guide for Clinicians*, 2nd edn. (Philadelphia: Lippincott Williams & Wilkins, 2000) in *National Catholic Bioethics Quarterly* 2(2): 351-353.

Paul Lauritzen, ed., *Cloning and the Future of Human Embryo Research*. (New York, NY: Oxford University Press, 2001) in *National Catholic Bioethics Quarterly* 1(4): 654-656.

John Paul II, *Fides et Ratio: On the Relationship between Faith and Reason*. (Boston, MA: Pauline Books and Media, 1998) in *Journal of Interdisciplinary Studies* 13:209-210.

William E. May, *Catholic Bioethics and the Gift of Human Life*. (Huntington, IN: Our Sunday Visitor Press, 2000) in *National Catholic Bioethics Quarterly* 1(1): 113-114.

Popular Essays

Austriaco, N. (2012) "Will Advances in the Life Sciences Change Our Vision of Man?" *Culture e Fede* 20: 23-25.

Austriaco, N. (2006) "Reading Genesis with Cardinal Ratzinger," *Homiletics and Pastoral Review* 106 (5): 22-27.

Austriaco, N. (2003) "The Myth of the Gay Gene," *Homiletics and Pastoral Review* 104 (3): 28-31; 48-53.

Austriaco, N. (2002) "Was Jesus Happy on the Cross?" *Homiletics and Pastoral Review* 102 (5): 24-30.

Austriaco, N. (2000) "Scientific Faith*," This Rock* 11(12): 8-11.

Newspaper Commentaries

"Stem Cell Order Was Immoral and Unnecessary," *Rhode Island Catholic,* April 2, 2009.

"Children Should Be Begotten and Not Made," *Rhode Island Catholic*, March 5, 2009.

"Patients Do Not Need Congressman Langevin's Clone-to-Kill Bill," *Rhode Island Catholic*, April 15, 2010.

PROFESSIONAL PRESENTATIONS

Invited Speaker

2015   Seminar: "Science and Religion: Strangers, Rivals, or Partners in the Search for Truth?" University of Notre Dame, Notre Dame, IN, June 14-19, 2015.

2015   Conference: "Libertas et conscientia," Stiftung politische und christliche Jugend-bildung e.V., Rocca di Papa, Rome, Italy, April 8-12, 2015.

2015   Consultation: "Mechanism of Action of Plan B," Canadian Catholic Bioethics Institute, Toronto, CA, March 5, 2015.

2015   Consultation: "Mechanism of Action of Plan B," The Center for Bioethics and Human Dignity, Trinity International University, Chicago, IL, February 6, 2015.

2014   Schmitt Lecture: "Is the Brain-dead Patient Really Dead? A Scientific, Philosophical, and Bioethical Analysis," University of Notre Dame, Notre Dame, IN, December 4, 2014.

2014   International Congress: "Dehumanization and Depersonalization in Medicine and the Modern World and the Life of St. John of Dukla," St. John of Dukla Cancer Center, Lublin, Poland, October 8-12, 2014.

2014   Lecture: "End of Life Care in the Catholic Tradition," Center for Religious Studies and Ethics, University of Santo Tomas, Manila, Philippines, August 13, 2014.

2014   Conference: "Eugenics and Ethics Conference," Archdiocese of Los Angeles, Cathedral of Our Lady of the Angels, Los Angeles, CA, July 26, 2014.

2014   Conference: "Recovering Causality: Historical Sources and Systematic Challenges from a Thomistic Perspective," The Pontifical University of St. Thomas Aquinas, Rome, June 24-26, 2014.

2014   John Templeton Seminar: "Science and Religion: Strangers, Rivals or Partners in the Search for Truth?" University of Notre Dame, Notre Dame, IN, June 15-20, 2014.

2014   Symposium: "Brain Death," The Catholic University of America, Washington, DC, June 3-4, 2014.

2014   Conference Keynote Speaker: "Rediscovering Joy in Health Care," University of St. Thomas, St. Paul, MN, March 28-29, 2014.

2014   The 2014 Carl J. Peter Lecture: "Preaching Catholic Bioethics with Joy and Mercy," North American College, Vatican City, March 2, 2014.

2013   Conference: "Second Vatican International Vatican Stem Cell Conference – Adult Stem Cells: Regenerative Medicine-A Fundamental Shift in Science and Culture," Vatican City, April 10-13, 2013.

2013   Conference: "What is Man that You Should Keep Him in Mind?" at 7th Annual St. Thomas Aquinas Theological and Catechetical Forum, Aquinas College, Nashville, TN, February 15-16, 2013.

2013   Workshop: "Bioethics Through the Eyes of Faith: Serving Christ in the Sick and Vulnerable," The Twenty-Fourth Workshop for Bishops, The National Catholic Bioethics Center and the Knights of Columbus, Dallas, TX, February 4-6, 2013.

2012   The 2012 Dom Luke Childs Lecture: "What Can Human Genomics Tell Us About Adam and Eve?" Portsmouth Abbey School, Portsmouth, RI, October 15, 2012.

2012   Conference: "What can Genomic Science Tell Us About Adam and Eve? A Catholic Perspective" at the Portsmouth Institute on Modern Science and Ancient Faith, Portsmouth Abbey, Portsmouth, RI, June 22 – 24, 2012.

2012   Conference: "What can Genomic Science Tell Us About Adam and Eve? A Catholic Perspective" at the Thomistic Circles on Creation and Modern Science, Dominican House of Studies, Washington, DC, April 14, 2012.

2012   Departmental Seminar: "To Die or Not to Die: Genetic Characterization of Yeast Programmed Cell Death," Trinity College, Hartford, CT, March 1, 2012

2011   Conference: "First Vatican International Vatican Stem Cell Conference – Adult Stem Cells: Science and the Future of Man and Culture," Vatican City, November 9-11, 2011.

2011   Workshop: "Workshop on Adult and Non-embryonic Stem Cell Research," University of Notre Dame, South Bend, IN, June 28-July 2, 2011.

2010   Conference: "Dominicans and the Challenge of Thomism," The Priory of St. Joseph, Warsaw, Poland, June 30-July 5, 2010.

2010   Plenary Session Presentation: "The Soul and Its Inclinations: Recovering a Metaphysical Biology with the Systems Perspective," Pontifical Academy of St. Thomas Aquinas, Vatican City, June 18-20, 2010.

2010   Roundtable TV Discussion: "Creating Synthetic Life: Your Questions Answered," Science Channel, Premiered on June 3, 2010, at 9 P.M.

2010   Aquinas Colloquium: "The Soul and its Inclinations: A Systems Perspective," Aquinas Institute, Blackfriars Hall, Oxford University, Oxford, England, March 6, 2010.

2010   Aquinas Seminar: "The Specification of Sex/Gender in the Human Species: A Thomistic Analysis," Aquinas Institute, Blackfriars Hall, Oxford University, Oxford, England, March 3, 2010.

2010   Linacre Forum: "Virtue in Bioethics," The Linacre Center for Healthcare Ethics, London, England, March 2, 2010.

2010   Lecture: "The Genetics of Programmed Cell Death in the Yeasts, *Saccharomyces cerevisiae* and *Candida albicans*," Angeles University, Angeles City, Philippines, January 12, 2010.

2009   Pontifical John Paul II Institute for Studies on Marriage and Family Symposium: "The Nature of Experience: Issues in Culture, Science, and Theology," The Catholic University of America, December 3-5, 2009.

2009   St. Benedict's Institute Lecture: "Stem Cell Research – Moral Controversies and Moral Alternatives," Virginia Commonwealth University, March 5, 2009.

2009   Social Trends Institute Experts Meeting: "Focus on the Embryo," Barcelona, Spain, January 23-25, 2009.

2008   Biology Department Seminar Series: "To Die or Not To Die: Genetic Studies of Programmed Cell Death in the Yeast, *Saccharomyces*," Rhode Island College, November 5, 2008.

2008   New Wine, New Wineskins Conference: "Natural Law Reasoning, Human Experience, and the Data of Science: The Test Case of Homosexuality," University of Notre Dame, South Bend, IN, July 31-August 3, 2008.

2007   Westchester Institute Forum: "On Defining Totipotency," Washington, DC, May 16-18, 2007.

2007   St. Catherine of Siena Lecture: "Stem Cell Research – Moral Controversies and Moral Alternatives," Quinnipiac University, April 26, 2007.

2007   Workshop: "Urged on by Christ: Catholic Health Care in Tension with Contemporary Culture," The Twenty-First Workshop for Bishops, The National Catholic Bioethics Center and the Knights of Columbus, Dallas, TX, February 5-7, 2007.

2006:   St. Luke Lecture: "Stem Cell Research – Moral Controversies and Moral Alternatives," Aquinas House, Dartmouth College, Hanover, NH, November 5, 2006.

2006:   Diocesan Priestly Convocation: "Genetics 101: An Introduction and Guide for Pastoral Ministry," Diocese of Grand Rapids, Grand Rapids, MI, September 25-28, 2006.

2006   Conference: "The Moral Status of the Human Embryo in a Liberal Society: A Scientific and Philosophical Argument," 9th Philippine Nurses Association of America Eastern Regional Conference, Baltimore, MD, September 22-24, 2006.

2006   Conference: "The Moral Status of the Human Embryo in a Liberal Society: A Scientific and Philosophical Argument," 23rd Annual Wilmer Nursing Conference, The Johns Hopkins University, Baltimore, MD, May 12, 2006.

2006   Congressional Briefing: "Alternative Sources for Pluripotent Stem Cells," United States Senate and House of Representatives, Washington, DC, April 5, 2006.

2006   Westchester Institute Forum: "On the Definition of "Human Embryo' and the Criteria for Distinguishing the Human Embryo from Non-Embryonic Entities," Washington, DC, March 2-3, 2006.

2006   Lecture: "Stem Cell Research: A Dialogue," Dominican School of Philosophy and Theology, Berkeley, CA, February 7, 2006.

2005   Westchester Institute Forum: "The Morality of Condom Use to Prevent the Spread of HIV," Washington, DC, November 3-4, 2005.

2005   Westchester Institute Forum: "The Ethics of Altered Nuclear Transfer," Washington, DC, April 28-29, 2005.

2005   St. Catherine of Siena Lecture: "Stem Cell Research – A Biologist Considers the Ethical Implications," St. Thomas Aquinas Catholic Church, University of Virginia, Charlottesville, VA, April 26, 2005.

2005   Conference: "Global State of Stem Cells and Cloning in Science, Ethics, and Law," Rome, Italy, March 7-8, 2005.

2004   Westchester Institute Forum: "The Morality of Heterologous Embryo Transfer," Washington, DC, October 28-29, 2004.

2004   Colloquium: "The Stem Cell Debate in the United States and the Federal Republic of Germany, The Catholic University of America, Washington, DC, October 4-5, 2004.

2004   Symposium: "Stem Cells: Science, Ethics and Politics at the Crossroads," The Science Network/ Salk Institute for Biological Studies, San Diego, CA, October 2, 2004.

2004   Conference: "Is It Possible to Say When Human Life Begins?" Center for Ethics in Science and Technology, University of California, San Diego, San Diego, CA, July 14, 2004.

2002   Symposium: "Stem Cell Research," Providence College, Providence, RI, October 10, 2002.

2001   Departmental Seminar Series: Department of Biology, Providence College, Providence, RI, March 29, 2001.

1997   Conference: Biotechnology and Biological Sciences Research Council Workshop on the Science of Ageing, University of Warwick, June 25-26, 1997.

Scientific Platform Presentations

2014   10th International Meeting on Yeast Apoptosis, Gothenburg, Sweden, May 14-18, 2014.

2011   8th International Meeting on Yeast Apoptosis, Canterbury, United Kingdom, May 2-6, 2011.

2008   6th International Meeting on Yeast Apoptosis, Leuven, Belgium, April 30-May 4, 2008.

2007   2nd Northeast Regional IDeA Meeting, Burlington, VT, August 15-17, 2007.

1996   Juan March Foundation Workshop on Chromosomal Compartments: Structure and Function of Telomeres and Centromeres, Madrid, Spain, September 1996.

1995   Seventeenth International Conference on Yeast Genetics and Molecular Biology, Lisbon, Portugal, June 10-16, 1995.

1991   Yeast Genetics and Molecular Biology Meeting, San Francisco, CA, May 23-27, 1994.

Scientific Poster Presentations

2015   ASBMB Annual Meeting, Boston, MA, March 28-29, 2015. [with student co-presenters]

2013   FASEB Science Research Conference: From Unfolded Proteins in the ER to Disease, Saxtons River, VT, June 16-21, 2013.

2013   ASBMB Annual Meeting, Boston, MA, April 20-24, 2013. [with student co-presenters]

2012   ASCB Annual Meeting, San Francisco, CA, December 15-19, 2012. [with student co-presenters]

2012   9th International Meeting on Yeast Apoptosis, Rome, Italy, September 16-20, 2012. [with student co-presenter]

2012   Gordon Research Conference on Cell Death, Il Ciocco, Italy, July 15-20, 2012.

2011   ASBMB Annual Meeting, Washington, DC, April 9-13, 2011. [with student co-presenters]

2010   ASBMB Annual Meeting, Anaheim, CA, April 24-28, 2010. [with student co-presenters]

2009   Cold Spring Harbor Laboratory Yeast Cell Biology Meeting, Cold Spring Harbor, NY, August 12-15, 2009. [with student co-presenters]

2006   Cold Spring Harbor Laboratory Molecular Genetics of Aging Meeting, Cold Spring Harbor, NY, October 4-8, 2006. [with student co-presenters]

2006   First Biennial National IDeA Symposium of Biomedical Research Excellence (NISBRE), Washington, DC, July 20-22, 2006. [with student co-presenters]

2006   Eastern Colleges Science/Sigma Xi Research Conference, Philadelphia, PA, April 21, 2006. [with student co-presenters]

1995   Gordon Conference on the Biology of Aging, Il Ciocco, Italy, May 7-12, 1995.

1994   Yeast Genetics and Molecular Biology Meeting, Seattle, WA, August 16-21, 1994.

1993   Yeast Genetics and Molecular Biology Meeting, Madison, WI, June 8-13, 1993.

1992   Gordon Conference on the Biology of Aging, New Hampton, NH, August 17-21, 1992.

Presbyteral Presentations to Bishops and Priests in Catholic Bioethics

2014   Metropolitan Province of Atlanta (Dioceses of Atlanta, Savannah, Charleston, Raleigh, and Charlotte), August 18-20, 2014.

2014   Diocese of Ogdensburg, NY, May 19-22, 2014.

2012   Archdiocese of Atlanta, GA, May 22, 2012.

2012   Diocese of Providence, RI, May 14, 2012.

2010   Archdiocese of Atlanta, GA, October 21, 2010.

2006   Diocese of Grand Rapids, MI, September 27-28, 2006.

PATENTS

- U.S. Patent No. 5,874,210, Issued February 23, 1999:   "Gene Determining Cellular Senescence In Yeast"

- U.S. Patents No. 5,919,618, Issued July 6, 1999; No. 6,218,512, Issued April 17, 2001:
  "Genes Determining Cellular Senescence In Yeast"

- U.S. Patent No. 6,787,300, Issued September 7, 2004:   "Identifying Lifespan-Altering Agents"

PUBLISHED DNA SEQUENCES IN THE NCBI GENBANK OF THE NATIONAL INSTITUTES OF HEALTH (NIH)

GenBank Accession Number: NC024147   GI: 640885160
Cornely et al., "Mycobaterium phage ZoeJ, complete genome," Published on May 27, 2014.
Phage isolation, DNA preparation, and annotation analysis performed at Providence College as part of the phage hunters laboratory, BIO103L-10.

GenBank Accession Number: KC661280.1   GI: 507805177
O'Brien et al., "Mycobaterium phage Job42, complete genome," Published on June 3, 2013.
Phage isolation, DNA preparation, and annotation analysis performed at Providence College as part of the phage hunters laboratory, BIO103L-10.

GenBank Accession Number: JQ085994.1   GI:380467953
Laprade et al., "Zingiber officinale cytosolic glyceraldehyde-3-phosphate dehydrogenase (GAPC) gene, partial cds," Published on March 20, 2012.
DNA Isolation, sequencing, and annotation analysis performed at Providence College as part of the modern genetics laboratory, BIO308L.

GenBank Accession Number: JQ340204.1   GI: 384403273
Samoriski et al., "Phalaenopsis hybrid cultivar cytosolic glyceraldehyde-3-phosphate dehydrogenase (GAPC) gene, partial cds," Published on April 22, 2012.
DNA Isolation, sequencing, and annotation analysis performed at Providence College as part of the modern genetics laboratory, BIO308L.

GenBank Accession Number: JQ340205   GI: 384403275
Still et al., "Gerbera hybrid cultivar cytosolic glyceraldehyde-3-phosphate dehydrogenase (GAPC) gene, partial cds," Published on April 22, 2012.
DNA Isolation, sequencing, and annotation analysis performed at Providence College as part of the modern genetics laboratory, BIO308L.

PERSONAL INFORMATION

Date of Birth: November 1, 1968.
Place of Birth: Manila, Philippines.
Immigration Status: Dual Citizenship – United States of America and Philippines.
Profession of Religious Vows: August 15, 1998.
Ordination to the Holy Priesthood: May 21, 2004.

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