

**DYNAMIC STRUCTURE OR ENDURING ACTIVITY? THOMAS AQUINAS
AND CONTEMPORARY NEO-ARISTOTELIANS
ON SUBSTANTIAL FORM**

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To my wife, Cristina.

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LIST OF ABBREVIATIONS

<i>CT</i>	<i>Compendium theologiae</i>
<i>DEE</i>	<i>De ente et essentia</i>
<i>DPN</i>	<i>De principiis naturae</i>
<i>DME</i>	<i>De mixtione elementorum</i>
<i>DUI</i>	<i>De unitate intellectus, contra Averroistas</i>
<i>In BDH</i>	<i>Expositio in librum Boethii De hebdomadibus</i>
<i>In BT</i>	<i>Expositio super librum Boethii De Trinitate</i>
<i>In DA</i>	<i>In libros De anima expositio</i>
<i>In DGC</i>	<i>In libros De generatione et corruptione expositio</i>
<i>In Met.</i>	<i>In duodecim libros Metaphysicorum expositio</i>
<i>In NE</i>	<i>In decem libros Ethicorum expositio</i>
<i>In PA</i>	<i>In libros posteriorum Analyticorum expositio</i>
<i>In Phy.</i>	<i>In octo libros Physicorum expositio</i>
<i>In Pol.</i>	<i>In libros Politicorum expositio</i>
<i>In Sent.</i>	<i>Scriptum super libros Sententiarum</i>
<i>QDA</i>	<i>Quaestiones disputatae de Anima</i>
<i>QDM</i>	<i>Quaestiones disputatae de malo</i>
<i>QDPD</i>	<i>Quaestiones disputatae de potentia Dei</i>
<i>QDSC</i>	<i>Quaestiones disputatae de spiritualibus creaturis</i>
<i>QDUVI</i>	<i>Quaestiones disputatae de unione Verbi incarnati</i>
<i>QDVC</i>	<i>Quaestio disputata de virtutibus in commune</i>
<i>QDV</i>	<i>Quaestiones disputatae de Veritate</i>
<i>QQ</i>	<i>Quaestiones de quodlibet</i>
<i>SCG</i>	<i>Summa contra Gentiles</i>
<i>ST</i>	<i>Summa theologiae</i>

All references to the works of Aquinas are to the Latin versions of the texts available at <http://www.corpusthomicum.org/iopera.html>. All English translations are my own.

INTRODUCTION: THE RETURN OF HYLOMORPHISM?

0.1 Motivating the Project

Hylomorphism is the view that at least some material objects are comprised of both matter and form. Hylomorphism was first introduced as a theory of material objects by Aristotle (though Plato's own view of material objects could, to some extent, be considered hylomorphic). During the medieval period, hylomorphism became the dominant view. Medieval scholastics advanced sophisticated hylomorphic theories of the natural world, and used the language of form and matter to articulate and elucidate various theological doctrines. At the start of the early modern period, however, with the rise of modern science, notions of form and matter were rejected in favor of more "empirically adequate" mechanistic explanations. As the story goes, the early moderns liberated philosophy from the constraints of the Aristotelian worldview, and laid the groundwork for a more scientifically-informed reductionist account of material objects. For centuries afterward, the theory of hylomorphism was seen by most as obscure, unmotivated, and hopelessly outdated.

Recently, however, there has been a revival of interest in Aristotelian and Neo-Aristotelian approaches to various issues in contemporary analytic metaphysics.¹ And within that revival, hylomorphism, too, has made something of a comeback. One of the central figures in this hylomorphic revival is Kathrin Koslicki. In her 2008 book, *The Structure of Objects*, for example, Koslicki defends the following, explicitly hylomorphic, thesis:

¹ See, for example, the essays included in: Tuomas E. Tahko (ed.), *Contemporary Aristotelian Metaphysics* (Cambridge: Cambridge University Press, 2012); John Greco and Ruth Groff (eds.), *Powers and Capacities in Philosophy: The New Aristotelianism* (New York: Routledge, 2012); Daniel D. Novotny and Lukas Novak (eds.), *Neo-Aristotelian Perspectives in Metaphysics* (New York: Routledge, 2014); Lukas Novak, Daniel D. Novotny, Prokop Sousedik, and David Svoboda (eds.), *Metaphysics: Aristotelian, Scholastic, Analytic* (Frankfurt: Ontos Verlag, 2012); Riin Sirkel and Tuomas E. Tahko (eds.), "Aristotelian Metaphysics: Essence and Ground", *Studia Philosophica Estonica*, Vol. 7, No. 2 (2014); Rafael Huntelmann and Johannes Hattler (eds.), *New Scholasticism Meets Analytic Philosophy* (Neunkirchen-Seelscheid, Germany: Editiones Scholasticae, 2015).

I propose that we once more follow Plato and Aristotle in assuming that the world is best described by taking ordinary material objects to be mereologically and ontologically complex in the sense that they are composed of both material and formal components... all wholes, according to the present approach, are taken to consist of the two components of structure or form, on the one hand, and content or matter, on the other.²

Since its release, Koslicki's book, and the Neo-Aristotelian account of material objects outlined therein, has gathered a significant amount of attention.³ And Koslicki is just one of several analytic philosophers who have in recent times voiced their support for a broadly hylomorphic worldview.⁴ The theory of hylomorphism, then, appears to be, at least to some extent, back on the table.

² Kathrin Koslicki, *The Structure of Objects* (Oxford: Oxford University Press, 2008): pp. 172-174.

³ Most of which can be found on her website: <https://kathrin-koslicki.squarespace.com/work/>.

⁴ In addition to the authors whose work I will consider in close detail in Chapters One and Two, some other notable contemporary metaphysicians sympathetic to hylomorphism include: Simon J. Evnine ("Ready-Mades: Ontology and Aesthetics", *British Journal of Aesthetics*, Vol. 53, No. 4 (Oct., 2013): pp. 407-423; *Making Objects and Events: A Hylomorphic Theory of Artifacts, Actions, and Organisms* (Oxford: Oxford University Press, 2016)), Thomas Sattig (*The Double Lives of Objects: An Essay in the Metaphysics of the Ordinary World* (Oxford: Oxford University Press, 2015)), Brian Leftow ("Souls Dipped in Dust", in Kevin Corcoran (ed.), *Soul, Body, and Survival: Essays on the Metaphysics of Human Persons* (Ithaca, NY: Cornell University Press, 2001): pp. 120-138; "Soul, Mind and Brain", in Robert C. Koons and George Bealer (eds.), *The Waning of Materialism* (Oxford: Oxford University Press, 2010): pp. 395-416), David B. Hershenov ("A Hylomorphic Account of Personal Identity Thought Experiments", *American Catholic Philosophical Quarterly*, Vol. 82, No. 3 (Summer, 2008): pp. 481-502; "Soulless Organisms? Hylomorphism vs. Animalism", *American Catholic Philosophical Quarterly*, Vol. 85, No. 3 (Summer, 2011): pp. 465-482), Michael C. Rea ("Sameness Without Identity: An Aristotelian Solution to the Problem of Material Constitution", *Ratio*, Vol. 11, No. 3 (Dec., 1998): pp. 316-328; "Hylomorphism Reconditioned", *Philosophical Perspectives*, Vol. 25 (Dec., 2011): pp. 341-358; "Hylomorphism and the Incarnation", in Anna Marmodoro and Jonathan Hill (eds.), *The Metaphysics of the Incarnation* (Oxford: Oxford University Press, 2011): pp. 134-152), Christopher M. Brown (*Aquinas and the Ship of Theseus: Solving Puzzles about Material Objects* (New York: Continuum, 2005); "Souls, Ships, and Substances: A Response to Toner", *American Catholic Philosophical Quarterly*, Vol. 81, No. 4 (Fall, 2007): pp. 655-668), Patrick Toner ("Thomas versus Tibbles: A Critical Study of Christopher Brown's 'Aquinas and the Ship of Theseus'", *American Catholic Philosophical Quarterly*, Vol. 81, No. 4 (Fall, 2007): pp. 639-653; "Emergent Substance", *Philosophical Studies*, Vol. 141, No. 3 (Dec., 2008): pp. 281-297; "On Hylomorphism and Personal Identity", *European Journal of Philosophy*, Vol. 19, No. 3 (Sep., 2011): pp. 454-473; "Hylomorphic Animalism", *Philosophical Studies*, Vol. 155, No. 1 (Aug., 2011): pp. 65-81; "On Aristotelianism and Structures as Parts", *Ratio*, Vol. 26, No. 2 (Jun., 2013): pp. 148-161), David S. Oderberg (*Real Essentialism* (New York: Routledge, 2007); "Is Form Structure?", in Daniel D. Novotny and Lukas Novak (eds.), *Neo-Aristotelian Perspectives in Metaphysics* (New York: Routledge, 2014): pp. 164-180), Ross D. Inman ("Essential Dependence, Truthmaking, and Mereology: Then and Now", in Lukas Novak, Daniel D. Novotny, Prokop Sousedik, and David Svoboda (eds.), *Metaphysics: Aristotelian, Scholastic, Analytic* (Frankfurt: Ontos Verlag, 2012): pp. 71-88; "Neo-Aristotelian Plenitude", *Philosophical Studies*, Vol. 168, No. 3 (Apr., 2014): pp. 583-597), Timothy Pawl and Mark K. Spencer, "Christologically Inspired, Empirically Motivated Hylomorphism", *Res Philosophica*, Vol. 93, No. 1 (Jan., 2016): pp. 137-160), and Anna Marmodoro ("Aristotle's Hylomorphism without Reconditioning", *Philosophical Inquiry*, Vol. 36, No. 1-2 (Winter-Spring 2013): pp. 5-22). See, also, the essays found in the April 2014 issue of *Res Philosophica*.

Like Koslicki, many other contemporary proponents of hylomorphism have argued that the best way to understand what the formal aspect of a material object is supposed to be is to focus on the structural features of that object's material constituents. In this way, the substantial form of a composite material object (its principal formal aspect) is construed as the internal "organization" or "configuration" of its matter, the "order" or "arrangement" of its parts. Following David Oderberg, let us refer to this popular Neo-Aristotelian approach to substantial form as "structural hylomorphism".⁵

According to structural hylomorphism, then, the principal formal aspect of a material object is a certain complex relation or structure that is realized in its material constituents. But what is a structure exactly? Is the structure of an object a property, power, or relation? Is it an object of some sort? Is it some other kind of thing? If it is a property, power, or relation, what sort of property, power or relation is it? If it is some other kind of thing, is it a hybrid of certain other categories or is it something completely unique? Very few structural hylomorphists have offered any sort of sustained treatment of this particular issue.⁶ Most seem to assume that we already have an intuitive understanding of what an organization, configuration, order, or arrangement is. Even Koslicki, who has done the most work among contemporary metaphysicians to try to rehabilitate a Neo-Aristotelian conception of form as structure, leaves the ontology of structure or substantial form itself undeveloped. As she explains towards the end of *The Structures of Objects*, summarizing her main conclusions,

The case of syntax and mathematics, then, suggests that structures at least in some contexts behave as objects, rather than as properties and relations; moreover, these specific contexts also seem to point to the conclusion that the properties and relations which elements in the domain come to exhibit as a result of occupying positions within a

⁵ Oderberg, "Is Form Structure?", p. 164.

⁶ The only sustained treatment of this issue of which I am aware is that found in William Jaworski's *Structure and the Metaphysics of Mind: How Hylomorphism Solves the Mind-Body Problem* (Oxford: Oxford University Press, 2016). I discuss Jaworski's approach to this issue in great detail in Chapter 1 below.

structure are merely closely associated with the structure in question and are not to be identified with it. I do not of course take these brief and programmatic remarks to have settled the question of what the ontological status of structure is for good; rather, this section at most provides some starting-points for a separate inquiry. What matters most from the point of view of the current discussion is to have established that a satisfactory account of the mereological characteristics of ordinary material objects requires the invocation of structural components; furthermore, the argument using Leibniz's Law and the Weak Supplementation Principle from Chapter VII, I take it, has provided general support for the thesis that the structural components which organize ordinary material objects are to be counted among the proper parts of the wholes in which they are present. These two central claims do not require a firm decision on the question of whether structures themselves belong to the category of objects or to that of properties and relations, and I will therefore leave this question to be addressed by future research.⁷

By Koslicki's own admission, then, more work needs to be done on the ontology of structure, more work needs to be done on the nature of substantial form.

It is my contention that the conception of substantial form espoused by Koslicki and other structural hylomorphists is not only incomplete in this regard, but also, as I will argue below, philosophically problematic. I do not, however, think that this is reason enough to abandon the project of hylomorphism altogether. I propose, instead, that we once more look to the work of Thomas Aquinas to help fill this lacuna in contemporary Neo-Aristotelianism and resolve some of the issues that arise for structural hylomorphism.

To be clear, I think that Aquinas rejects the structural hylomorphist conception of substantial form. I also think that his reasons for doing so are both insightful and instructive. And so, in what follows, I will have much to say about this negative stream of Aquinas's thought. But Aquinas also gives us the framework for a positive account of substantial form. Throughout his works, there are various features of the natural world that he posits substantial form to explain, and so there are detailed discussions of a substantial form's various functional roles. He offers various analogies of the relationship between form and matter, part of the aim of which is to

⁷ Koslicki, *The Structure of Objects*, pp. 253-254. I will have much more to say about Koslicki's view and the ontology of structure to which she is committed in Chapter 1 below.

better elucidate the nature of substantial form. And there are a few instances in which we learn more about substantial form from the ways in which he contrasts it with members of the other categories in his ontology.

Having said all of this, however, for reasons I will outline at the end of Chapter 3, it is not clear to me that Aquinas gives us a complete ontology of substantial form either. I think that there are some legitimate worries for his account that remain even after all of the relevant texts have been considered. Nevertheless, I do think that we can, using the resources that Aquinas gives us, as well as some of the tools of contemporary analytic philosophy, construct an ontology of substantial form on his behalf - one that is loyal to the texts of Aquinas, and, most importantly, avoids many, if not all, of the problems that I will raise for structural hylomorphism. The goal of my dissertation, then, is to articulate and defend this Thomistic, non-structuralist conception of substantial form.

Before moving on to a synopsis of each of the following chapters, I want to first address one recent and important objection to the project that I have just described. The objection runs as follows. The search for a singular account of substantial form is doomed to fail. There is no single sort of thing that can play all of the roles that Aquinas, or even Neo-Aristotelian structural hylomorphists, intend substantial form to play. There is no single sort of thing that angels, human beings, cats, dogs, trees, water molecules, carbon atoms and quarks all have in common. In his most recent book, *Metaphysical Themes 1274-1671*, Robert Pasnau presents something like this objection in opposition to the more optimistic enterprise that I have outlined above. At the beginning of part three, he explains that

[f]or those who aspire to the modern revival of Aristotelianism, the concept of *form* can easily take on the aspect of a kind of Holy Grail, such that if only we could get these ideas clearly in focus, we could then see our way forward on any number of philosophical fronts, such as the union of mind and body, the coherence and endurance of substances,

the nature of causality, and so on. The historical record, however, suggests that this hope is a snare and a delusion. There has never been any such thing as *the* theory of form; instead, form is just a conveniently pliable catchword that takes on substantive meaning only when developed in one controversial direction or another.⁸

Pace Pasnau, I think that if we limit our medieval authors to just Aquinas, and limit our analysis of form to just substantial form, then it is plausible to suppose that there is some single sort of thing to which all characterizations of substantial form refer. It may very well be the case that when we investigate the development of the concept of form through the main periods of scholasticism we find that several authors are only using the same terms analogously. It may also be the case that accidental and substantial forms are only very loosely the same sort of thing.⁹ Nevertheless, I still think that an accurate account of substantial form is within our grasp. And, moreover, even if not a Holy Grail, this account may turn out to be something of a Rosetta Stone for understanding Aquinas's ontology. Whether there is some single notion to be gathered from both Aquinas and contemporary Neo-Aristotelians, however, remains to be seen. It is my hope that this dissertation will serve at least in part as the sort of "future research" Koslicki has in mind.

0.2 Synopses of the Chapters

The goal of Chapter 1 of my dissertation is to offer an analysis and evaluation of structuralhylomorphism. Here I consider the views of five main structuralhylomorphists: four contemporary Neo-Aristotelians and one contemporary analytic Thomist. On the Neo-Aristotelian side, in addition to Koslicki, I also consider the work of Kit Fine, Mark Johnston, and William Jaworski. On the Thomist side I focus on Eleonore Stump's conception of substantial form as "configuration". The order of operations is as follows: First I outline the main

⁸ Robert Pasnau, *Metaphysical Themes: 1274-1671* (Oxford: Oxford University Press, 2011): p. 179.

⁹ Traditionally, accidental forms are those formal aspects of a substance that it can lose over time without thereby ceasing to exist. I will have more to say about the difference between accidental and substantial forms in Chapters Two and Three.

claims of each of the Neo-Aristotelian versions of structural hylomorphism, pointing out the ways in which they differ from one another. Second, I enumerate what I take to be the main philosophical advantages of Neo-Aristotelian structural hylomorphism in general. Third, I present three main objections to structural hylomorphism. Fourth, I outline the main features of Stump's structural hylomorphism and show how it differs from the other four versions considered earlier. I argue that, while Stump's version fares much better than the other four with regard to my three main objections to structural hylomorphism, there are problems for her view that remain. At the end of Chapter 1 I argue that inasmuch as any of these five structural hylomorphists can successfully respond to my three objections, they can do so only by navigating their views away from structural hylomorphism and toward what I will refer to as "hyloenergeism" – an alternative approach to substantial form that I consider in more detail in Chapter 4. The two main goals of Chapter 1 are (1) to get a clearer picture of the sort of ontology of substantial form to which structural hylomorphists are committed, and (2) to argue that this conception of substantial form is problematic, and so those sympathetic to hylomorphism ought to look elsewhere. In this way the latter serves as a sort of motivation for the chapters that follow.

In my view, substantial form plays an integral role in Aquinas's ontology. As I see it, almost everything in his ontology is built either on or around substantial forms. In Chapter 2 of my dissertation, I offer a sketch of Aquinas's general ontology in order to try to justify these claims. For much of the chapter I work with and around Jeffrey Brower's own recent reconstruction of Aquinas's ontology of material objects.¹⁰ But there are some key features of Brower's model with which I disagree (both interpretively and philosophically), and so I also offer my own alternative model that diverges from Brower's in some important respects. Midway

¹⁰ Jeffrey E. Brower, *Aquinas's Ontology of the Material World: Change, Hylomorphism, and Material Objects* (Oxford: Oxford University Press, 2014).

through the chapter, I compare these two models to other popular substance ontologies found in the contemporary literature. I end by offering a twofold defense of the alternative model: I argue that the alternative model offers a better, that is, more accurate, interpretation of Aquinas, and a less philosophically problematic account of material objects. The two main goals of this chapter are (1) to present my own map of Aquinas's ontology, and (2) to make manifest the important place that substantial form occupies within it. This chapter serves both as a further motivation for the project, and an introduction to the formidable task ahead.

As I mentioned earlier, Aquinas tells us three sorts of things about substantial form. First, there are various features of the natural world that he posits substantial form to explain, and so there are detailed discussions of a substantial form's various functional roles. Second, he offers various analogies of the relationship between form and matter, part of the aim of which is to better elucidate the nature of substantial form. And finally there are a few instances in which we learn more about substantial form from the way in which Aquinas contrasts it with members of the other categories in his ontology. In Chapter 3 of my dissertation, I sort through the relevant texts in order to offer what I take to be a comprehensive summary of Aquinas's characterizations of substantial form and his philosophical motivations for characterizing substantial form in those ways. I highlight the ways in which Aquinas's conception of substantial form differs from that proposed by structural hylomorphists, as well as the reasons that he gives for rejecting certain characterizations of substantial form that would align him with that sort of view. As I said before, I think that Aquinas falls short of giving us a complete ontology of substantial form. And so the goal of Chapter 3 is not to reveal a fully developed alternative to structural hylomorphism. That is the goal of Chapter 4. The two main goals of Chapter 3 are (1) to provide textual support for my claim that Aquinas rejects the structural hylomorphist conception of substantial form, and (2)

to assemble a list of all of Aquinas's positive characterizations of substantial form for use in my own creative reconstruction in Chapter 4.

In Chapter 1 I argue that the best way for structural hylomorphists to avoid at least two of my principal objections to the view is to conceive of substantial form as something more than, and perhaps even other than, the various spatial and causal relations that hold between a substance's material constituents. Koslicki seems to offer some tentative support for this strategy in her suggestion that some structures are more like *objects* than properties or relations.¹¹ It is my contention, however, that the category of object is not the only ontological category a member of which could play this role. The contemporary hylomorphist need not choose between a conception of substantial form according to which it is a property, power, or relation and a conception of substantial form according to which it is itself an object of some sort. There is another conception of substantial form available, according to which a substantial form is more like an *activity* or *process* than an object or a property. As I discuss in Chapter 1, in his response to one of my main objections to structural hylomorphism, Jaworski introduces the notion of *activity* to explain the persistence of living things over time. And there are other philosophers who have offered similar sorts of views. Some of these philosophers identify a material substance with a particular activity, process, or operation. Others, consonant with a broadly hylomorphic worldview, construe that activity, process, or operation as the formal aspect of a material object (the material aspect being that which participates in the activity, process, or operation). Following Mark Steen, let us refer to this latter approach to substantial form as "hyloenergeism".¹²

¹¹ See the quotation on pp. 2-3 above.

¹² Mark Steen, "Stuff, Process, and Object: An Examination of Substance and its Alternatives", Ph.D. Dissertation, Syracuse University, 2005, p. 288; Mark Steen, "Bare Objects, Ordinary Objects, and Mereological Essentialism", Unpublished Manuscript. The term 'hyloenergeism' is, like 'hylomorphism', a combination of two Greek words

The goal of Chapter 4 of my dissertation is to articulate and defend a particular version of hyloenergeism, according to which the substantial form of a material substance is a certain substantial activity or substantial process. Here I draw from both hylomorphic and non-hylomorphic accounts of material objects within which process or activity plays a key role, as well as some of the recent literature on activity or process as a unique species of occurrence. The order of operations is as follows: First, I give an overview of various contemporary analytic approaches to understanding the nature of occurrences, emphasizing in particular two leading accounts of processes. Second, I outline the main claims of some recent non-hylomorphic and hylomorphic activity or process-based accounts of material objects. Third, I present my own version of hyloenergeism – one that borrows from, and builds on, the views already considered in this chapter. Fourth, I outline the main theoretical and explanatory virtues of hyloenergeism in general. I argue that a conception of substantial form as substantial activity has the resources to avoid the three main objections that I introduced for structural hylomorphism in Chapter 1. In the final section, I summarize my main conclusions and point to several areas that still require further development. By the end of Chapter 4 I hope to have shown that, while it is not without its own difficulties, hyloenergeism is a legitimate alternative to structural hylomorphism, and a promising avenue for further research. It might also be what Aristotle and Aquinas had in mind all along.

used by Aristotle throughout his works to describe the dual-aspect nature of material substances. In the present case, the two words are '*hyle*', which is often translated as 'matter', and '*energeia*', which is sometimes translated as 'activity'. Hyloenergeism, then, is the view that all material objects are composites of matter and activity, with activity playing the role of substantial form.

CHAPTER 1: STRUCTURAL HYLOMORPHISM

1.1 Neo-Aristotelian Structural Hylomorphism:

In his 2006 article, “Hylomorphism”, Mark Johnston articulates and defends a dual-aspect, hylomorphic account of material objects. While it is not his primary goal to defend the views of any particular historical proponent of hylomorphism, Johnston’s account does indeed seem to share certain basic features with the sort of view of material objects espoused by many ancient and medieval philosophers, including Aristotle and Thomas Aquinas. According to Johnston, every composite material object should be understood as possessing, in addition to its various material constituents, a “principle of unity” that holds those parts together:

A statement of the genuine parts and principle of unity of an item (at a given level of composition) takes the following canonical form: What it is for... (the item is specified here)... to be is for... (some parts are specified here) ...to have the property or stand in the relation... (the principle of unity is specified here)... The idea that each complex item will have some such canonical statement true of it might be fairly called ‘Hylomorphism.’ For it is the idea that each complex item admits of a real definition, or statement of its essence, in terms of its matter, understood as parts or components, and its form, understood as a principle of unity.¹³

For Johnston, then, every composite material object has a “form” and the form of that material object is the principle of unity that holds its material components, its “matter”, together. As indicated in the passage above, Johnston takes the principle of unity of a material object to be a complex *relation* in which its material components stand to one another. Importantly, however, this relation is *not*, for Johnston, some further component of the object. As he explains later on in the article, if the principle of unity were itself a part of the composite material object, then there would still be a question of what holds the principle of unity together with all of the material

¹³ Mark Johnston, “Hylomorphism”, *The Journal of Philosophy*, Vol. 103, No. 12 (Dec., 2006): p. 658. Johnston proposes the same theory of composition, without the language of hylomorphism, at Mark Johnston, “Parts and Principles: False Axioms in Mereology”, *Philosophical Topics*, Vol. 30, No. 1 (Spr., 2002): p. 133; Mark Johnston, “Constitution”, in Frank Jackson and Michael Smith (eds.), *The Oxford Handbook of Contemporary Philosophy* (Oxford: Oxford University Press, 2008): p. 640.

parts. If what holds the principle of unity and all of the material parts together is some further part, then this would seem to introduce an infinite regress: each additional unifying part requiring another unifier to join it to the others. If what holds the principle of unity and all of the material parts together is not some further part, Johnston continues, then that is the real principle of unity, the substantial form of the material object. For this reason, Johnston rejects the mereological conception of hylomorphism to which, as will be shown below, many other Neo-Aristotelian structural hylomorphists adhere.¹⁴

It is also worth mentioning here that, for Johnston, an object's principle of unity, the relation that holds its material constituents together, is a universal, a multiply-instantiated, repeatable entity, rather than a trope-like particular:

perhaps the most controversial issue in the Hylomorphic tradition, namely whether the forms or principles of unity are to be thought of as 'trope-like,' as individualized characteristics or relations, or instead as universals in the sense of items potentially in common to many distinct individuals. Yet once origins and original parts are invoked as the essential differences among individual examples of any kind of complex item, it will no longer be necessary to postulate individualized forms as the source of the individuation of distinct individuals of a given kind.¹⁵

Based on these remarks, we can summarize the main features of Johnston's version of Neo-Aristotelian structural hylomorphism as follows:

¹⁴ Johnston, "Hylomorphism", pp. 652-653, 659, and 672-673 (see also, Johnston, "Parts and Principles", pp. 131, 162-164; Johnston "Constitution", pp. 637-638, 663-665). Though he does not cite the argument in of any his articles, Johnston's reasoning here is reminiscent of Aristotle's famous syllable argument in his *Metaphysics*, Book VII, Chapter 17 (see: Aristotle, W. D. Ross (trans.), *Metaphysics*, in Jonathan Barnes (ed.), *The Complete Works of Aristotle*, Vol. 2 (Princeton, NJ: Princeton University Press, 1984): pp. 1643-1644). Anna Marmodoro, another contemporary hylomorphist who rejects "mereological hylomorphism" for precisely the same reason, does cite the relevant passage from Aristotle in support of her position (see: Anna Marmodoro, "Aristotle's Hylomorphism Without Reconditioning", *Philosophical Inquiry*, Vol. 36, No. 1-2 (Winter-Spring 2013): pp. 5-22), as does Verity Harte (see: Verity Harte, *Plato on Parts and Wholes: The Metaphysics of Structure* (Oxford: Oxford University Press, 2005): pp. 11). For an alternative, mereological reading of *Metaphysics* VII, 17, see Kathrin Koslicki, "Aristotle's Mereology and the Status of Form", *The Journal of Philosophy*, Vol. 103, No. 12 (Dec., 2006): pp. 718-728, and Kathrin Koslicki, *The Structure of Objects* (Oxford: Oxford University Press, 2008): pp. 108-111. For a response to Johnston's own version of the argument, and a defense of mereological hylomorphism, see Koslicki, *The Structure of Objects*, pp. 198.

¹⁵ Johnston, "Hylomorphism", pp. 659-660.

- (1) Hylomorphism: there is both a material aspect and a formal aspect to composite material objects.
- (2) Non-mereological Hylomorphism: the formal aspect of a material object, its principle of unity, is not some further part of that object.
- (3) Relationalism: the formal aspect of a material object, its principle of unity, is a relation that holds between its material components.
- (4) Universal Forms: the formal aspect of a material object, the relation that holds between its material components, is a universal, not a particular.

Kit Fine's version of Neo-Aristotelian structural hylomorphism is similar to Johnston's in several important respects. First, it is explicitly hylomorphic: "This account takes seriously the idea that there is both a formal and material aspect to most material things. Thus it falls squarely within the hylomorphic tradition of Aristotle."¹⁶ Second, Fine, like Johnston, also takes the formal aspect of any material object to be a certain polyadic relation:

I should like to suggest that we take the bold step of recognizing a new kind of whole. Given objects *a*, *b*, *c*, . . . and given a relation *R* that may hold or fail to hold of those objects at any given time, we suppose that there is a new object—what one may call 'the objects *a*, *b*, *c*, . . . in the relation *R*.'¹⁷

However, unlike Johnston, Fine is committed to a version of mereological hylomorphism, according to which the formal aspect of a material object is one of that object's proper parts.¹⁸ Also unlike Johnston, Fine takes the formal component of a material object, the relation that unifies its material constituents, to be a trope-like particular, rather than a universal.¹⁹

To illustrate the main features of his own view, Fine gives the following example, referring to the sorts of composite material objects that he has in mind as "rigid embodiments":

So, for example, given some flowers and given the relation of being bunched, there will be a new object—the flowers in the relation of being bunched (what might ordinarily be

¹⁶ Kit Fine, "Things and Their Parts", *Midwest Studies in Philosophy*, Vol. 23, No. 1 (1999): p. 62. Though Fine has much to say about parts and wholes in other, more recent works (see, for instance, Kit Fine, "Towards a Theory of Part", *The Journal of Philosophy*, Vol. 107, No. 11 (Nov., 2010): pp. 559-589), in what follows I will focus on the account he gives in "Things and Their Parts".

¹⁷ *Ibid.*, p. 65.

¹⁸ See, for example, *Ibid.*, p. 72.

¹⁹ *Ibid.*, pp. 63-64.

called a ‘bunch of flowers’). Intuitively, this new object is an amalgam or composite of the component objects a, b, c, \dots and the relation R . But it is a composite of a very special sort. For the components and the relation do not come together as coequals, as in a regular mereological sum. Rather, the relation R preserves its predicative role and somehow serves to modify or qualify the components. However, the result of the modification is not a fact or state. It is a whole, whose components are linked by the relation, rather than the fact or state of the components being so linked. An object of this special sort will be called a rigid embodiment, since the ‘form’ R is embodied in the fixed ‘matter’ a, b, c, \dots . Let us agree to designate such an object by the term ‘ $a, b, c, \dots / R$.’ The relation R will then be called the principle of rigid embodiment, and the operation by which a rigid embodiment is formed from the objects a, b, c, \dots and a relation R , the operation of rigid embodiment... (R1) The rigid embodiment $a, b, c, \dots / R$ exists at a time t iff R holds of a, b, c, \dots at t .²⁰

Setting aside, for now, some of the particular details of the account, Fine’s version of Neo-Aristotelian structural hylomorphism, then, can also be reduced to four main claims:

- (1) Hylomorphism: there is both a material aspect and a formal aspect to composite material objects.²¹
- (2) Mereological Hylomorphism: the formal aspect of a material object is a proper part of that object (though it is a proper part of a different sort).²²
- (3) Relationalism: the formal aspect of a material object is a relation that holds between its material components.
- (4) Particular Forms: the formal component of a material object, the relation that holds between its material constituents, is a trope-like particular, not a universal.

Kathrin Koslicki devotes an entire chapter of her book, *The Structure of Objects*, to a critique of Fine’s version of structural hylomorphism.²³ At the end of Chapter VII she also offers a rebuttal to Johnston’s main argument against mereological hylomorphism.²⁴ And so we should expect that Koslicki’s account would be somewhat different from both of the versions of

²⁰ *Ibid.*, pp. 65-66.

²¹ As some of the passages above suggest, Fine also seems willing to grant the existence of at least some sorts of “compounds” – composite material objects that are simply the sum of their material parts (see: Kit Fine, “Compounds and Aggregates”, *Noûs*, Vol. 28, No. 2 (Jun., 1994): pp. 137-158). And so it might not be correct to say that for Fine *every* composite material object has both a material aspect and a formal aspect. However, I do not think that this will have much of an effect on the present discussion, and so, for the sake of parallelism, I will leave claim (1) as is.

²² According to Fine’s account there is more than one way for something to be a part of something else (see, for example, Fine, “Things and Their Parts”, p. 61).

²³ Koslicki, *The Structure of Objects*, pp. 71-90. See also, Kathrin Koslicki, “Towards a Neo-Aristotelian Mereology”, *Dialectica*, Vol. 61, No. 1 (Mar., 2007): pp. 127-159.

²⁴ *Ibid.*, p. 198.

structural hylomorphism considered thus far. No doubt, as we will see, there are some important differences. Still, she does fit squarely into the structural hylomorphist camp. And so her account does share some of the same general features.

For instance, like Fine, and unlike Johnston, Koslicki espouses a version of mereological hylomorphism, according to which material objects are literally composed of both material and formal elements. She calls this her “Neo-Aristotelian Thesis”.²⁵ As we saw in the first quotation from my introduction, in Koslicki’s case, material objects are composed of both *structure* and *content*:

I propose that we once more follow Plato and Aristotle in assuming that the world is best described by taking ordinary material objects to be mereologically and ontologically complex in the sense that they are composed of both material and formal components... all wholes, according to the present approach, are taken to consist of the two components of structure or form, on the one hand, and content or matter, on the other.²⁶

Moreover, like Johnston, and unlike Fine, Koslicki seems to prefer a conception of substantial form according to which the structure of an object is a universal, rather than a particular.²⁷

Koslicki, then, is committed to four main claims, which, on the face of it, appear to be quite close to the claims that we used to characterize Johnston’s and Fine’s views:

(1) Hylomorphism: there is both a material aspect and a formal aspect to composite material objects.²⁸

(2) Mereological Hylomorphism: the formal aspect of a material object is a proper part of that object.²⁹

²⁵ *Ibid.*, p. 181.

²⁶ *Ibid.*, pp. 172-174.

²⁷ See, for instance, *Ibid.*, pp. 257-258. In that same brief discussion, however, Koslicki also recognizes that a conception of structures as trope-like particulars could potentially provide a solution to a certain puzzling case for her account (see also, Trenton Merricks, “Review of Kathrin Koslicki, *The Structure of Objects*”, *The Journal of Philosophy*, Vol. 106, No. 5 (May, 2009): p. 305).

²⁸ Note that Koslicki’s hylomorphic analysis of material objects only applies to *composite* material objects, that is, material objects that have more than one material constituent. At p. 187 of her *The Structure of Objects*, Koslicki explains that if there are material simples, that is, material objects that have no material constituents, then such material objects will have no formal aspect.

²⁹ Unlike Fine, Koslicki recognizes only a single relation of parthood (see, for example, *The Structure of Objects*, pp. 167-168). However, I do not think that this difference will have any significant bearing on the present discussion.

(3) Structuralism: the formal aspect of a material object is a certain structure that is realized in the material aspect of that object, which serves as its content.

(4) Universal Forms: the formal component of a material object, its structure, is a universal, not a particular.

Koslicki's most important contribution to structural hylomorphism is her conception of form as structure (claim (3) above).³⁰ But what exactly is structure? Is the structure of a composite material object a *relation* or a *set of relations* that holds between its material parts? Is it a non-relational *property* of some sort? Is the structure of a composite material object itself a certain kind of *object*? Is it something composed of relations, properties, and objects? Or is it something new, something of an altogether different category? Unfortunately, Koslicki is, for the most part, non-committal about the ontology of structure in her work.³¹ However, she does offer some helpful characterizations of the sort of ontology that she prefers. For instance, early on in Chapter VII, Koslicki describes the structure of an object as that which provides kind-specific "slots" for various material constituents to fill, much like a seating arrangement for a dinner party:

³⁰ For interpretations of Aristotle or Aquinas according to which the substantial form of a composite material substance is identified with its internal structure, see, for example: Marjorie Grene, "Aristotle and Modern Biology", *Journal of the History of Ideas*, Vol. 33, No. 3 (Jul.-Sep., 1972):pp. 395-424; Richard J. Connell, *Substance and Modern Science* (Houston, TX: The Center for Thomistic Studies, 1988); Montgomery Furth, *Substance, Form and Psyche: An Aristotelean Metaphysics* (Cambridge: Cambridge University Press, 1988): p. 92; Marilyn McCord Adams, *Some Later Medieval Theories of the Eucharist: Thomas Aquinas, Gilles of Rome, Duns Scotus, and William Ockham* (Oxford: Oxford University Press, 2010). For Adams, the substantial form of a living organism is a certain "dynamic structure" (see, for example, pp. 5-6), a notion that will become important for my consideration of Stump's view below.

³¹ Throughout most of her book, Koslicki's remarks seem to suggest that, by the end, she will have given us her own preferred ontology of structure. For example, on page 169 she says, "Among the questions left open by RCP [Koslicki's "Restricted Composition Principle" – more on this later], for example, is the question of how exactly we ought to think about the formal components of objects. For one thing, RCP does not settle the ontological category to which the formal components of objects belong, i.e., whether they are themselves objects, whether they are properties or relations, or whether they belong to some other ontological category still. These questions will be discussed in more detail in Chapter IX below..." And, a little later, on pages 174-175, she indicates, "We have, however, up to this point left open the ontological category to which the formal components of objects are to be assigned, i.e., whether these entities belong to the category of objects, to that of properties or relations, or to some other category still. These issues will be investigated further and in more detail in Chapter IX." However, as the quotation from Koslicki on pp. 3-4 above attests, even by the end of Chapter IX she hasn't given us very much of an ontology of structure. And, to my knowledge, she has yet to address this issue in subsequent published work.

we may think of the formal components associated with a particular kind of whole... as the sorts of entities that provide ‘slots’ to be filled by objects of a certain kind: thus, the formal components belonging to a particular kind of whole will generally specify not only the configuration to be exhibited by the material components in question, i.e., how these objects are to be arranged with respect to one another; they will also usually specify the variety of material components of which the whole in question may be composed, i.e., what sorts of objects can go into the various ‘slots’ provided by the formal components.³²

Later on, she describes the structure of an object as a sort of recipe that calls for specific material ingredients:

I take the primary job of an object’s formal components to consist in the specification of a range of selection requirements that must be satisfied by a plurality of objects in order to compose a whole of a particular kind. We may thus think of an object’s formal components as a sort of recipe for how to build wholes of that particular kind. An object’s material components or matter, on the other hand, may be thought of as the ingredients that are called for in the recipe: they are the objects which, in a successful case of composition, in fact satisfy the conditions dictated by the formal components. In the preceding remarks, we have, among the requirements set by the formal components of ordinary material objects, singled out in particular those that concern the spatio-temporal proximity and, more generally, the manner of arrangement that must be exhibited by an object’s material components. However, as we know from our discussion of Aristotle, formal components may also set additional constraints, for example, concerning the variety, and in some cases even the number, of material components from which a given whole may be composed.³³

What we can gather from these passages is that, for Koslicki, the structure of an object has an important *causal* role to play. According to Koslicki, the structure of any given material object in some way *constrains* its material components, specifying those components in terms of their type, number, and configuration. This characterization of structure almost makes it sound as if the structure of an object is meant to precede, or be in some way “ontologically prior” to, the sorts of relations between parts that Fine and Johnston identify as the formal aspect of a

³² *Ibid.*, p. 169. The reference here is to an example first introduced by Verity Harte: “suppose that you are organizing a dinner party. There are eight guests – and you are to seat the guests so that they alternate by gender. Starting from one of eight chairs around a round table, you seat the guests clockwise in the following sequence: first a man, then a woman, then a man, then a woman, etc. The resulting configuration seats every man between two women and every woman between two men. ‘Sequence’ and ‘configuration’ are terms closely connected to structure. The seating arrangement of the dinner party here described may be taken as an example of structure” (Harte, *Plato on Parts and Wholes*, pp. 159-160).

³³ *Ibid.*, p. 172.

composite material object. In support of this interpretation, toward the end of her book, Koslicki states that

The evidence reviewed above suggests that structures are at least in some contexts treated as objects, rather than as properties or relations. At the same time, even when structures are so treated, they are always also closely linked with certain properties and relations which elements in the domain come to exhibit as a result of occupying the positions made available by the structure in question; but these properties and relations are nevertheless in these contexts not identified with the structures with which they are associated.³⁴

Once again, however, right after making these remarks, Koslicki voices her reservations about making any firm commitments about the ontology of structure.³⁵ Later on, I will have more to say about what sort of ontology of substantial form Koslicki may or may not actually be committed to, but at this point we can at least say that Koslicki intends her conception of substantial form as structure to be crucially different from the relational conception espoused by Johnston and Fine.

The last Neo-Aristotelian structural hylomorphist that I would like to consider in this chapter is William Jaworski. In a number of recent books and articles, Jaworski, like Johnston, Fine, and Koslicki, has argued for the thesis that, for any composite material object, that object possesses, in addition to its material components, an irreducibly formal element.³⁶ And, like Koslicki, Jaworski argues that this irreducibly formal element is the object's structure. In his most recent book, *Structure and the Metaphysics of Mind*, for example, Jaworski describes his view as follows:

³⁴ *Ibid.*, p. 252.

³⁵ *Ibid.*, pp. 252-253.

³⁶ Here I will focus primarily on the account that Jaworski gives in his most recent book, *Structure and the Metaphysics of Mind: How Hylomorphism Solves the Mind-Body Problem* (Oxford: Oxford University Press, 2016), but other relevant works include: William Jaworski, *Philosophy of Mind: A Comprehensive Introduction* (Malden, MA: Wiley-Blackwell, 2011); William Jaworski, "Hylomorphism: What It Is and What It Isn't", *Proceedings of the American Catholic Philosophical Association*, Vol. 85 (2012): pp. 173-187; William Jaworski, "Powers, Structures, and Minds", in John Greco and Ruth Groff (eds.), *Powers and Capacities in Philosophy: The New Aristotelianism* (New York: Routledge, 2012): pp. 145-171; William Jaworski, "Hylomorphism and Resurrection", *European Journal for Philosophy of Religion*, Vol. 5, No. 1 (Spring, 2013): pp. 197-224; William Jaworski, "Hylomorphism and the Metaphysics of Structure", *Res Philosophica*, Vol. 91, No. 2 (Apr., 2014): pp. 179-201.

Hylomorphism claims that structure (or organization, form, arrangement, order, or configuration) is a basic ontological and explanatory principle. Some individuals, paradigmatically living things, consist of materials that are structured or organized in various ways. You and I are not mere quantities of physical materials; we are quantities of physical materials with a certain organization or structure.³⁷

Unlike Koslicki (and Fine), and like Johnston, Jaworski rejects a mereological understanding of this key hylomorphic claim. On his view, though a composite material object in some sense “consists” of matter and form, that is, of various materials and a certain kind of structure, that structure is not to be included among its proper parts.³⁸ Moreover, according to Jaworski, the structure of any particular object is a trope-like particular, not a universal. As he explains,

structures are particulars. To say that you and I configure materials humanwise does not imply that there is a universal, configured humanwise, that you and I have in common. If properties are tropes, then my configuring and your configuring are numerically different properties, although they resemble each other rather closely—more closely than, say, either resembles Fido’s configuring the materials that compose him or the oak tree’s configuring the materials that compose it. My configuring and yours are also nontransferable: my configuring cannot belong to anything other than me, nor can your configuring belong to anything other than you.³⁹

In this way, Jaworski’s conception of substantial form is closer to Fine’s than Johnston’s or Koslicki’s.

According to Jaworski’s version of structural hylomorphism, then, the substantial form of a composite material object is a certain kind of structure. But, once again, we might ask: what exactly is the structure of an object? Despite addressing this issue in several of his works, Jaworski is, like Koslicki, difficult to pin down on what precisely he takes structure to be. As we have seen, Jaworski often characterizes the structure of an object as the organization or configuration of its material parts that makes that object the kind of object that it is. In this way,

³⁷ Jaworski, *Structure and the Metaphysics of Mind*, pp. 1, 8.

³⁸ Jaworski speaks of composite material objects as “consisting” of form and matter in several places, including Jaworski, *Philosophy of Mind*, p. 170. It is only in his *Structure and the Metaphysics of Mind*, pp. 327-329, that he explicitly rejects a mereological understanding of hylomorphism. It is worth noting that Jaworski rejects mereological hylomorphism for the same reason that Johnston does, even citing Johnston’s argument in support of that rejection.

³⁹ Jaworski, “Metaphysics of Structure”, p. 188. See also: Jaworski, *Structure and the Metaphysics of Mind*, p. 94.

Jaworski's structure sounds a bit like the unifying relation posited by Johnston and Fine. And, indeed, at certain points, Jaworski does seem to admit that a structure is a kind of relation.⁴⁰ But he is also keen to distance his view from the views of Johnston and Fine in several ways. For example, according to Jaworski, the structure of a composite material object is not a relation that holds between the parts, but a relation that holds between the whole and the parts:

The account of structures I defend nevertheless differs in significant ways from Fine's and Johnston's. One difference... is that Fine and Johnston conceive of hylomorphic structures as relations among something's parts. I conceive of them rather as relations between wholes and their parts: A whole configures or structures its parts.⁴¹

In other contexts, Jaworski seems to prefer a conception of structure according to which the structure of an object is a certain kind of property that it possesses, a certain type of power:

What exactly are structures? The metaphysic developed in Chapters 2-5 implies that they must be either individuals or properties, and the theoretical roles we expect structures to play are characteristic of properties. Structures, for instance, are supposed to confer powers. The squashing example introduced in Section 1.1 suggests that Godehard's structure is what confers on him the powers to think, feel, perceive, and act. According to the metaphysic defended in Chapters 2-5, it is properties that confer powers. Consequently, if we assume that metaphysic, we appear committed to structures being properties. If structures are properties, then they have all the characteristics of properties discussed in Chapters 3 and 4. First, they must be powers – powers in particular to configure (or organize, order, or arrange) materials. Each structured individual organizes or configures the materials that compose it. I configure the materials that compose me, and you configure the materials that compose you.⁴²

⁴⁰ See, for example, the passage included below.

⁴¹ *Ibid.*, p. 96fn.

⁴² *Ibid.*, p. 94. See also: Jaworski, "Metaphysics of Structure", pp. 188-189. For a similar hylomorphic account of material objects according to which the substantial form of an object is a certain unifying power or "nature", see Michael C. Rea, "Hylomorphism Reconditioned", *Philosophical Perspectives*, Vol. 25 (Dec., 2011): pp. 341-358. Unfortunately, since Rea's "reconditioned hylomorphism" does not seem to fit into either the structural hylomorphist camp (this chapter) or the hyloenergeist camp (Chapter Four), an analysis of the details of his view is beyond the scope of the present discussion. But it would be interesting to see if his version of hylomorphism is susceptible to the same sorts of objections that I will raise for Neo-Aristotelian structural hylomorphism below. Anna Marmodoro gives her own critique of Rea's view in her "Aristotle's Hylomorphism Without Reconditioning", pp. 12-15. And I will have more to say about Marmodoro's preferred conception of substantial form in Chapter Four below. Robert Pasnau interprets Aquinas as holding the view that the substantial form of an object (material or immaterial) is a certain "causal power" (see, for example: Robert Pasnau, "Form, Substance and Mechanism", *The Philosophical Review*, Vol. 113, No. 1 (Jan., 2004): pp. 43-44, 47, 81 (fn17), 82 (fn23); Robert Pasnau, "Philosophy of Mind and Human Nature," in Brian Davies and Eleonore Stump (eds.), *The Oxford Handbook of Aquinas* (Oxford: Oxford University Press, 2012): pp. 353, 358, 361). In Chapter Three below, I argue that there are good reasons to think that this is actually not Aquinas's view.

On this conception, the “power” that is an object’s structure is such that it is necessarily and unceasingly manifested by the composite whose power it is. For the composite to cease manifesting that power, for a composite to cease configuring the materials of which it is composed, would be for that composite to cease to exist.⁴³

On Jaworski’s view, then, the structure of an object seems to be a certain kind of relation that holds between the whole and its parts, and a certain kind of property, a power, that that whole possesses. But there is also an important “dynamic” element to Jaworski’s structures. Indeed, various remarks in his *Structure and the Metaphysics of Mind* and elsewhere seem to indicate that, on Jaworski’s view, the structure of a composite material object is, in some cases, more like a “pattern of interaction” or an “activity”, something that the object *does*, rather than a relation or set of relations between its parts:

Often when people think of structure, they think of something static such as the relatively unchanging spatial relations among atoms in a crystal. But the philosophers and scientists we’re considering don’t view structure so narrowly. Although we can refer to the sum of spatial relations among something’s parts as a structure, the structures that are likely to interest us most – the kind of structures that, say, distinguish living things from nonliving ones – are not static spatial relations, but dynamic patterns of environmental interaction.⁴⁴

A structured individual comes into existence exactly when its activity of configuring materials commences, and the materials it configures are precisely those that compose it. Structured individuals are thus emergent individuals who are essentially engaged in the activity of configuring the materials that compose them.⁴⁵

These last remarks make it a bit more difficult to determine what precisely Jaworski takes a structure to be. Is the structure of a composite material object (a) its power to configure the materials of which it is composed, (b) the act of configuring those materials that it performs, or

⁴³ Jaworski, *Structure and the Metaphysics of Mind*, p. 97.

⁴⁴ *Ibid.*, pp. 14-15.

⁴⁵ *Ibid.*, p. 104. See also: Jaworski, “Hylomorphism: What It Is and What It Isn’t”, p. 182; Jaworski, “Powers, Structures, and Minds”, p. 157; Jaworski, “Hylomorphism and Resurrection”, p. 212; Jaworski, *Philosophy of Mind*, p. 280.

(c) the actual configuration of those materials that results? Perhaps, on Jaworski's view, the answer to this question depends on what sort of composite material object we are considering. Or perhaps Jaworski means to remain neutral on this issue for the moment, and his remarks are merely intended to introduce several plausible conceptions of structure, all of which illustrate his general point: that composite material objects are more than just their materials. I will discuss Jaworski's conception of substantial form in more detail later, but at this point it should at least be clear that, like Koslicki, Jaworski intends his account of form as structure to be importantly different from the relationalist conception offered by Johnston and Fine, and perhaps even importantly different from the alternative structuralist conception introduced by Koslicki.

Based on what was said above, then, let us summarize the main points of Jaworski's version of structural hylomorphism as follows:

- (1) Hylomorphism: there is both a material aspect and a formal aspect to composite material objects.
- (2) Non-Mereological Hylomorphism: the formal aspect of a material object is not a proper part of that object.
- (3) Structuralism: the formal aspect of a material object is a certain structure that is realized or manifested in the material aspect of that object, the materials of which it is composed.
- (4) Particular Forms: the formal component of a material object, its structure, is a trope, not a universal.

1.2 Explanatory and Theoretical Virtues of Neo-Aristotelian Structural Hylomorphism

Before moving on to my main objections to the structural hylomorphist conception of substantial form, I would like to first outline what I take to be the main explanatory and theoretical virtues of Neo-Aristotelian structural hylomorphism in general.

The first point in favor of Neo-Aristotelian structural hylomorphism is that it offers a rather compelling anti-reductionist account of material objects. Many of the material objects with which we are familiar seem not to be mere heaps or sums of their material parts. Rather, it seems

that those same (or succeeding) material parts need to be arranged, organized, configured or structured in some particular way in order to successfully compose the objects in question. This point is nicely illustrated by an example from Jaworski:

Suppose we put Godehard in a strong bag - a very strong bag since we want to ensure that nothing leaks out when we squash him with several tons of force. Before the squashing the contents of the bag include one human being; after they include none. In addition, before the squashing the contents of the bag can think, feel, and act, but after the squashing they can't. What explains these differences in the contents of the bag presquashing and post-squashing? The physical materials (whether particles or stuffs) remain the same - none of them leaked out. Intuitively we want to say that what changed was the way those materials were structured or organized. That organization or structure was responsible for there being a human before the squashing, and for that human having the capacities it had. Once that structure was destroyed, there no longer was a human with those capacities. Structure is thus a basic ontological principle; it concerns what things there are.⁴⁶

Since the formal aspect of a material object, its structure, is meant here to be both a necessary feature of that object and something other than its material constituents, Neo-Aristotelian structural hylomorphism offers a plausible strategy for resisting the ontological reduction of a composite whole to its material parts.

In a similar way, Fine's and Koslicki's mereological versions of Neo-Aristotelian structural hylomorphism, which take an object's structure or form to be one of its proper parts, might be seen to offer a unique solution to what is known as the "Grounding Problem".⁴⁷ The Grounding Problem arises when we consider cases of spatio-temporally coincident, but, nevertheless, numerically distinct, material objects. Consider, for example, the standard case of the statue and the clay. A statue and the lump of clay of which it is composed or constituted share all of their material parts for at least a certain portion of their careers. But even during their

⁴⁶ Jaworski, *Structure and the Metaphysics of Mind*, p. 9. See also: Jaworski, "Hylomorphism and Resurrection", pp. 197-198.

⁴⁷ For more on the Grounding Problem, see, for example, Karen Bennett, "Spatio-Temporal Coincidence and the Grounding Problem", *Philosophical Studies*, Vol. 118, No. 3 (Apr., 2004): pp. 339-371; Noël Saenz, "A Grounding Solution to the Grounding Problem", *Philosophical Studies*, Vol. 172, No. 8 (Aug., 2015): pp. 2193-2214; Mark Jago, "Essence and the Grounding Problem", in Mark Jago (ed.), *Reality Making* (Oxford: Oxford University Press, 2016): pp. 99-120.

period of overlap the two are typically taken to be numerically distinct material objects. This is due to the fact that they each have different modal properties: the lump of clay could survive being squashed; the statue could not. But what *grounds* these modal differences? How could the statue and the clay have different modal properties when they are both made up of the very same parts? Koslicki's proposed solution to the Grounding Problem is to emphasize the fact that, on her account, the statue and the clay (or any two spatio-temporally coincident, but numerically distinct, material objects) do not in fact share all of the same parts, even during their period of overlap. The statue is composed of all of the same material parts as the lump of clay, but it also has, as an additional part not had by the lump of clay, a certain structure or form. And, according to Koslicki, the fact that the statue has, as one of its proper parts, a structure or form, which is not also possessed by the lump of clay, explains why it has a different modal profile. The reason why the statue could not survive being squashed is because squashing the statue would cause it to lose its principle formal part – its structure. As a result, Neo-Aristotelian structural hylomorphism offers a distinctive mereological solution to the Grounding Problem.⁴⁸

The example from Jaworski above also points to a third explanatory virtue of Neo-Aristotelian structural hylomorphism. Most Neo-Aristotelian structural hylomorphists take structure or form to be not only kind-specific, but kind-*specifying*. That is, any particular object is the kind of object that it is *because* of its structure. According to Koslicki, a material object, x, qualifies as a member of a certain kind, y, if and only if the parts of x realize some certain

⁴⁸ See, for example: Koslicki, *The Structure of Objects*, pp. 181-183, 254-257, and Kit Fine, "Coincidence and Form", *Proceedings of the Aristotelian Society Supplementary Volume*, Vol. 82, No. 1 (Jun., 2008): pp. 101-118. For some doubts about the success of this proposed solution, see Alan Sidelle, "Does Hylomorphism Offer a Distinctive Solution to the Grounding Problem?", *Analysis*, Vol. 74, No. 3 (Jul., 2014): pp. 397-404. For other attempts to provide a mereological solution to the Grounding Problem, see, for example, Kris McDaniel, "Tropes and Ordinary Physical Objects", *Philosophical Studies*, Vol. 103, No. 3 (Jun., 2001): pp. 269-290; L. A. Paul, "Logical Parts", *Noûs*, Vol. 36, No. 4 (Dec., 2002): pp. 578-596; L. A. Paul, "Coincidence as Overlap", *Noûs*, Vol. 40, No. 4 (Dec., 2006): pp. 623-659; Jago, "Essence and the Grounding Problem".

structure, z, that is distinctive of y.⁴⁹ Similarly, according to Jaworski, the species to which a particular organism belongs, for example, is determined by the capacities that that organism has in virtue of its structure.⁵⁰ In other words, according to Neo-Aristotelian structural hylo-morphists, it is because a certain material object has a certain structure that it has certain species-specific qualities or dispositions, and it is because that material object has those species-specific qualities or dispositions that it belongs to a certain kind. The Neo-Aristotelian conception of substantial form as structure, then, also offers a systematic approach to natural kinds.

As Koslicki points out in Chapter VII of *The Structure of Objects*, one further advantage that Neo-Aristotelian structural hylo-morphism has over “Classical Extensional Mereology”, the view that Koslicki refers to as the “standard conception of composition”, is that it is not committed to mereological universalism – the claim that for any arbitrary set of existing objects there also exists some object that is composed of all and only the members of that set – and so might be said to avoid the counter-intuitive implications of that view.⁵¹ According to Koslicki, the standard conception of composition, due to its commitment to mereological universalism, is forced to admit the existence of many more (perhaps even infinitely more) composite objects than we normally take there to be. For instance, if it is in fact the case that for any arbitrary set of existing objects, there also exists some object composed of all and only the members of that set, then not only do cars, houses, tables, chairs, plants, and animals exist, but so do such

⁴⁹ Koslicki, *The Structure of Objects*, pp. 173.

⁵⁰ See, for example: Jaworski, *Philosophy of Mind*, pp. 270-271; Jaworski, “Hylomorphism: What It Is and What It Isn’t”, p. 177.

⁵¹ Koslicki, *The Structure of Objects*, pp. 168-170. For more on Classical Extensional Mereology, see, for example, Peter M. Simons, *Parts: A Study in Ontology* (Oxford: Oxford University Press, 2000). For a recent defense of mereological universalism, see: James van Cleve, “The Moon and Sixpence: A Defense of Mereological Universalism”, in Theodore Sider, John Hawthorne, and Dean W. Zimmerman (eds.), *Contemporary Debates in Metaphysics* (Malden, MA: Blackwell Publishing, 2008): pp. 321-339. And for a list of other philosophers committed to mereological universalism, see the citations in Daniel Z. Korman, *Objects: Nothing Out of the Ordinary* (Oxford: Oxford University Press, 2015): p. 14, fn1).

“mereological monsters” as the object composed of my left thumb, my mother’s knee, and the Empire State Building. The standard conception of composition, then, posits the existence of all sorts of composite objects, the existence of which we normally would not have any reason to grant. And this would seem to be a serious cost of the view. On Koslicki’s more restricted theory of composition, however, for any set of objects, the members of that set compose some further object if and only if those objects jointly realize or instantiate certain structural features. If they are not arranged or configured in the right way, the members of that set fail to compose anything at all. Now, much more needs to be said about which arrangements or configurations are relevant for mereological composition, but in the case of my left thumb, my mother’s knee, and the Empire State Building, it seems pretty clear that there are no such structural features present. In that way Neo-Aristotelian structural hylomorphism grounds a much more plausible, restricted theory of composition.⁵²

One final theoretical virtue of Neo-Aristotelian structural hylomorphism is that it is able to establish the anti-reductionist, composition-restricting, kind-specifying, and capacity-grounding roles of substantial form without having to introduce many of the more controversial aspects of Aristotle’s or Aquinas’s metaphysical views.⁵³ All that is required in many of these versions of hylomorphism is a commitment to either universals or tropes, and a willingness to think of at least some of these universals or tropes as proper parts of the objects that are characterized by them.

⁵² The fact that Neo-Aristotelian structural hylomorphism can be seen to ground a restricted theory of composition is not a *unique* advantage of the view, since there are other ways of resisting mereological universalism. But it might still offer a unique way of doing so. For some alternative, similarly restricted mereologies, see, for example: Peter van Inwagen, *Material Beings* (Ithaca, NY: Cornell University Press, 1990); Trenton Merricks, *Objects and Persons* (Oxford: Oxford University Press, 2001); Ned Markosian, “Restricted Composition”, Theodore Sider, John Hawthorne, and Dean W. Zimmerman (eds.), *Contemporary Debates in Metaphysics* (Malden, MA: Blackwell Publishing, 2008): pp. 341-364.

⁵³ Jaworski takes this to be an important advantage of his account over other contemporary hylomorphic views that are nevertheless still steeped in scholastic jargon (see, for example, Jaworski, *Structure and the Metaphysics of Mind*, pp. 330-331).

In the next three sections of this chapter, I will argue that, despite these impressive theoretical and explanatory virtues, the conception of substantial form to which Neo-Aristotelian structural hylomorphists are committed also introduces some serious concerns for the view.

1.3 Three Main Objections to Neo-Aristotelian Structural Hylomorphism

1.3.1 Posteriority and Causal Overdetermination

According to Johnston and Fine (but not Koslicki and Jaworski), the form of a composite material object is a certain polyadic relation that unifies its material constituents. Among contemporary analytic metaphysicians, such a construal of form is not uncommon. So, for instance, in his brief critique of Aquinas's hylomorphic theory of human persons, Peter van Inwagen confesses,

It seems evident to me that the phrase 'the form of my body' must either strictly speaking denote nothing (that is, although this phrase can appear in meaningful and true sentences, it will, 'disappear on analysis': for example, the true sentence, 'The form of my body remains constant as long as I remain alive' expresses something that could be more perspicuously expressed by some such words as 'The formal features of my body do not change as long as I am alive') or else must denote some abstract object, some very complex property I have throughout my existence, or some very complex variably polyadic relation that at every moment of my existence then holds among the particles of matter that at that moment compose my body.⁵⁴

Despite the ease with which form tends to be identified with a complex or polyadic relation, I think there are several reasons for resisting this conception. For one, relations are ubiquitous. As Koslicki observes in her own critique of Fine's view,⁵⁵ if all that it takes to compose some further object is for certain objects or parts of objects to be related to one another in a certain way, then there may very well be, in addition to the ordinary material objects that we typically recognize, a whole slew of "mereological monsters" not even recognized by those who espouse mereological

⁵⁴ Peter van Inwagen, "A Materialist Ontology of the Human Person", in Peter van Inwagen and Dean Zimmerman (eds.), *Persons: Human and Divine* (Oxford: Oxford University Press, 2007): p. 205.

⁵⁵ See, for example, Koslicki, *The Structure of Objects*, pp. 83-85. The objection that follows is from Koslicki. The example is my own.

universalism, such as “hand sandwiches” (mereological wholes brought into existence by placing one’s hand between two slices of bread). Indeed, the very same material constituents of any mereological whole might, on this view, compose an abundance of distinct, but overlapping mereological wholes, as long as there are multiple relations that hold between them. Now, both Fine and Johnston seem willing to accept this consequence of their views.⁵⁶ But on this point I am in agreement with Koslicki: having to recognize the existence of a distinct material object for every distinct relation is much too high of a cost to pay forhylomorphism.⁵⁷

Perhaps, then, the structuralist conception of form espoused by Koslicki and Jaworski can do better on this score. For, presumably, a structure is something a bit more robust than a mere relation that holds between two or more objects; not just any sort of relation between parts would seem to count as a structural feature of the composite object. And perhaps, as the remarks from Koslicki and Jaworski above would suggest, the only sorts of structures that give rise to new material objects are those structures that are distinctive of natural kinds. In that case, the structuralist conception of form may not give rise to the same superabundant ontology that the relationalist conception does.

Nevertheless, as we saw earlier, the structuralist conception of form does still give rise to a certain amount of overlapping, yet numerically distinct, material objects. At the very least, Neo-Aristotelian structuralhylomorphists are committed to the claim that there exist composite wholes that are numerically distinct from the material objects that serve as their material constituents. In what follows, I will argue that even if the structuralist conception of substantial form can help Neo-Aristotelian structuralhylomorphists successfully avoid the superabundant

⁵⁶ See, for example: Fine, “Things and Their Parts”, pp. 73-74; Kit Fine, “Response to Kathrin Koslicki”, *Dialectica*, Vol. 61, No. 1 (Mar., 2007): pp. 161–166; Johnston, “Hylomorphism”, p. 698.

⁵⁷ It also undermines the fourth theoretical virtue outlined above: that Neo-Aristotelian structuralhylomorphism’s restricted theory of composition significantly pares down the number of objects that exist.

ontology to which the relationalist conception gives rise, its commitment to this last claim - that there exist composite wholes that are numerically distinct from the material objects that serve as their material constituents – is enough to introduce some serious concerns for the view. In particular, I will argue that this claim gives rise to a certain sort of systematic causal overdetermination. And the fact that Neo-Aristotelian structural hylomorphism has this consequence will serve as my first main objection to the view.

Let us begin with a basic formulation of structural hylomorphism's Neo-Aristotelian theory of composition:

Neo-Aristotelian Structural Hylomorphism's Basic Theory of Composition: when certain material objects come to be structured in a certain way, those objects give rise to a numerically distinct composite whole.

According to Neo-Aristotelian Structural Hylomorphism's Basic Theory of Composition, when a certain kind of structure is added to a certain set of material objects, the result is that those material objects give rise to a numerically distinct, composite whole. For example, when some hydrogen atoms and an oxygen atom come to exhibit certain structural relations, the result is that those atoms give rise to a numerically distinct water molecule. And when I gather various pieces of wood and assemble them in the proper way, the result is a new table. Understood diachronically, Neo-Aristotelian Structural Hylomorphism's Basic Theory of Composition says that, in cases of mereological composition, certain structural features are added to certain already-existing material objects, which then give rise to numerically distinct, composite wholes. Of course, Neo-Aristotelian structural hylomorphists need not say that the material objects that serve as the material constituents of composite wholes *necessarily* pre-exist their composites (since we can imagine cases in which they come into existence at the same time), but it seems plausible to suggest that the sorts of material objects that give rise to numerically distinct composite wholes can, and often do, pre-exist such wholes. For, when a new water molecule

comes into existence, it would seem to come into existence *from* some pre-existing hydrogen atoms and a pre-existing oxygen atom. And when I build a table, I *first* gather the legs, the top, and all of the rest of the pieces and *then* I put them together in the appropriate way. Now, if it is indeed true that, in typical cases of mereological composition, the material objects that come to compose numerically distinct composite wholes when structured in the appropriate manner pre-exist their composites, then, with regard to these sorts of cases, we ought to ask the following question: what happens to those pre-existing material objects when they come to compose such wholes?

Here it seems that the Neo-Aristotelian structural hylomorphist has three options. First, she could say that in such cases the material objects that come to compose numerically distinct, composite wholes continue to exist upon being structured in the relevant way, and, moreover, undergo no significant change in either their intrinsic nature or their external behavior. Let us refer to this diachronic theory of composition as *preservationism*. Second, she could say that, in those cases in which the relevant material objects pre-exist the wholes of which they will later become parts, those objects continue to exist upon being structured in the relevant way, but do undergo some significant change in their intrinsic natures or their external behaviors. Let us refer to this diachronic theory of composition as *alterationism*. Third, she could say that those material objects that come to compose numerically distinct, composite wholes cease to exist upon being structured in the relevant way and are replaced by the new object (or objects) that their union has created. Let us refer to this diachronic theory of composition as *annihilationism*.⁵⁸

⁵⁸ There are, in turn, at least two versions of annihilationism that one could hold. First, one could hold that when pre-existing material objects give rise to a “composite” whole they are annihilated and replaced by a single, non-composite entity, which has no other material objects as parts. We might call this view *simple annihilationism*. Alternatively, one could hold that when pre-existing material objects give rise to a composite whole they are replaced by a numerically distinct, complex material object, which has various new material objects as its parts. We might call this view *complex annihilationism*. (Presumably, for complex annihilationism, the new material objects that serve as parts of the new mereologically complex whole would be of a different sort than those that preceded it.

Based on my analysis of Neo-Aristotelian structuralhylomorphism in sections 1.1 and 1.2 above, it should come as no surprise that Neo-Aristotelian structuralhylomorphists tend to be preservationists. After all, it is an integral feature of the view that composite wholes have certain other material objects as parts. And the simplest explanation for where these material constituents came from is that they are the very same material objects to which the relevant relation or structure was first applied. Serving as confirmation of this suspicion, at various points in *The Structure of Objects*, Koslicki expresses her own commitment to something like preservationism. In the context of her treatment of Plato's structural mereology, for instance, she considers a version of annihilationism that she calls "Reverse Mereological Essentialism", only to immediately reject it.⁵⁹ On Koslicki's preferred account, "when a new whole is created, it is created out of pre-existing wholes, each of which is already structured; and it is created by structuring these pre-existing wholes in some new way."⁶⁰ As she explains later on, using the example of a table and its various material components:

Since the process of assembling the table in the normal case only changes the ingredients' non-essential relational characteristics, there is no reason to think, given the persistence conditions we ordinarily ascribe to these objects, that they cease to exist merely as a result of being rearranged. For example, it seems plainly compatible with the persistence conditions of the two pieces of wood, which we describe (looking towards the future) as a table-leg and a table-top, that the two may come into closer proximity to one another. Thus, unless there is additional evidence to the effect that the pre-existing ingredients are somehow destroyed during the process of assembling the table, it is thus natural to view them as still maintaining a 'presence' of some sort within the resulting table; the most obvious way in which their continued 'presence' within the resulting table may be understood is by appeal to the notion of parthood.⁶¹

Otherwise, it is not clear to me what the motivation for saying that the preceding ones ceased to exist would be.) Importantly, there is nothing about these diachronic theories of composition that necessitates their universality. One could, for instance, hold that preservationism applies to certain kinds of wholes, and alterationism to others. Or one could hold a different diachronic theory of composition for different levels of composition. Perhaps preservationism is true at the atomic level, while annihilationism is true at some higher level.

⁵⁹ Koslicki, *The Structure of Objects*, pp. 112-117. Koslicki's reasons for rejecting Reverse Mereological Essentialism (or lack thereof) are discussed in Ross D. Inman, "Review of Kathrin Koslicki, *The Structure of Objects*", *Philosophia Christi*, Vol. 13, No. 1, (2011): pp. 219-223.

⁶⁰ *Ibid.*, p. 118.

⁶¹ *Ibid.*, p. 177.

Koslicki, then, is clearly committed to preservationism. Moreover, Johnston, too, seems to hold that the sorts of material objects that serve as the proper parts of composite wholes are only contingently related by their principle of unity:

In each instance a hylomorphic complex may seem to be ontologically dependent on its genuine parts, the parts related by its principle of unity. Those parts figure in the real definition of the whole, and *since they could be around anyway without making up the whole, the whole will not figure in the real definition of the parts*. Hence Hylomorphism seems to sit well with the thought that the whole is always ontologically dependent on its parts.⁶²

And the second quotation from Fine above suggests that he also thinks that the sorts of relations between objects that give rise to numerically distinct wholes “may hold or fail to hold of those objects at any given time.”⁶³

Taking these remarks as representative of the view, then, we might say that, according to Neo-Aristotelian structural hylomorphism, when certain material objects come to be structured such that those objects come to compose some numerically distinct composite whole, those same material objects continue to exist upon being structured in the relevant way. And, moreover, they do so without changing any of their essential characteristics. As a result, in such cases those

⁶² Johnston, “Hylomorphism”, p. 676, emphasis added. As I will discuss in more detail below, however, Johnston also thinks that his version of hylomorphism is compatible with the claim that some wholes are “ontologically prior” to their parts, that is to say, some parts might depend for their existence and their identity on the wholes that they compose, rather than the other way around. And this claim would constitute a denial of preservationism.

⁶³ Fine, “Things and Their Parts”, p. 65. However, Fine, too, think that his version of hylomorphism is compatible with the claim that some wholes are “ontologically prior” to their parts in the way specified in the previous footnote. With regard to Jaworski, Jaworski recognizes two kinds of parts that composite wholes can be said to have: dependent parts and independent parts. Dependent parts are such that they depend for their existence on the composite whole of which they are parts, and so do not exist before that whole comes to be. Examples of dependent parts are the functional parts of an organism, such as the organism’s hands, head, and heart. Independent parts, on the other hand, are such that they can exist independent from the composite whole of which they are parts, and so might have existed before that whole came to be. Examples of independent parts are the elemental parts of a composite substance, such as its electrons. For Jaworski, then, some of the objects that give rise to composite wholes continue to exist upon the introduction of those wholes (the electrons involved, for example), while others do not. Even those electrons, however, undergo various changes in their intrinsic nature and external behavior upon the introduction of the relevant wholes, according to Jaworski. For more on this, see: Jaworski, *Structure and the Metaphysics of Mind*, pp. 116-117. For an earlier suggestion along these lines, see, for example: Jaworski, “Metaphysics of Structure”, pp. 193-194, 196. It is also worth noting that immediately after the relevant section from his *Structure and the Metaphysics of Mind*, Jaworski goes on to reject a full-blown version of annihilationism that he calls “The Thomistic Theory of Parts”.

material objects now partially overlap the composite wholes of which they have become parts, while also maintaining their own characteristic attributes, causal powers, and behaviors. So as to capture these important diachronic elements of the account, we might, then, reformulate structural hylomorphism's Neo-Aristotelian theory of composition as follows:

Neo-Aristotelian Structural Hylomorphism's Diachronic Theory of Composition: when certain material objects come to be structured in a certain way, those objects, without undergoing any significant change in either their intrinsic natures or external behaviors, come to compose, along with that structure, some numerically distinct, composite whole.

As it is formulated here, Neo-Aristotelian Structural Hylomorphism's Diachronic Theory of Composition does indeed commit the structural hylomorphist to a certain amount of overlapping, yet numerically distinct, material objects: namely, composite wholes and their parts. But why should this be seen as a problematic feature of the view? Why think that this claim would commit Neo-Aristotelian structural hylomorphism to any sort of systematic causal overdetermination? With structural hylomorphism's diachronic theory of composition in place, I will now proceed to my argument for that conclusion.

To begin, consider once again the statue and the clay.⁶⁴ Imagine that I am carrying a certain heavy, unformed lump of clay across the room when I drop it on my toe. What should we

⁶⁴ This example, the next example, and the discussion that follows are all adapted from an argument first introduced by Trenton Merricks in his *Objects and Persons*, pp. 47-84. For other, similar formulations of the argument, see, for example: Patrick Toner, "Emergent Substance", *Philosophical Studies*, Vol. 141, No. 3 (Dec., 2008): pp. 281-297; Ross D. Inman, "Substantial Priority: An Essay in Fundamental Mereology", Ph.D. Dissertation, Trinity College, Dublin, 2013: pp. 191-198; Daniel Z. Korman, "Ordinary Objects", in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, Spring 2014 Edition, available at: <http://plato.stanford.edu/archives/spr2014/entries/ordinary-objects/>; Korman, *Objects*, Ch. 10. The observation that such cases, given certain other assumptions, seem to result in systematic causal overdetermination, then, is not new. What is new is my application of this sort of argument to Neo-Aristotelian structural hylomorphism. As will be argued below, I think that these sorts of cases are especially troublesome for this sort of view. Given certain assumptions to which Neo-Aristotelian structural hylomorphists are otherwise committed, it is not at all clear to me that *any* of the standard replies to Merricks's argument are available to them. That is, at least, what I will try to argue below. For Jaworski, since there are no lumps of clay, statues, or tables (see, for example, his *Structure and the Metaphysics of Mind*, p. 106), this particular puzzle and the next would not apply to his version of structural hylomorphism, but there are still organisms and electrons on his view, and so the puzzles could simply be shifted to cases of coincidence with respect to an organism and the electrons of which it is composed, with the same result (or so I would argue).

say has crushed my toe? It seems that we should say that it was the lump of clay. Now imagine that at some time later a sculptor takes that same lump of clay and molds it into a statue.

According to structural hylomorphism's diachronic theory of composition, we now have two overlapping, yet numerically distinct, material objects: the lump of clay and the statue, which is composed of the lump of clay and a certain form or structure.⁶⁵ Now imagine that I am carrying that same lump of clay, which now spatially coincides with the statue, across the room when I, once again, drop it on my toe. What should we say has crushed my toe in this case? It seems that in the second case we have two candidates for the material object that crushed my toe, both of which were there at the time and had the requisite mass to do the job. Did *both* the lump of clay and the statue crush my toe at the same time? If so, then it looks as if the crushing of my toe is causally overdetermined: there are two, numerically distinct causes of the crushing of my toe, either of which would have been sufficient by itself to bring about the effect.

Consider also the table and the material objects of which it is made. Imagine that while gathering various pieces of wood in preparation for putting together a table, I decide to throw all of those pieces through the nearest window, breaking it. What should we say has broken the window here? It seems that we should say that it was the pieces of wood, acting in concert, that did it (assuming that there are such things as pieces of wood, that such things can be causally efficacious and, in the present case, that no one of the pieces was sufficient to break the window by itself). Now imagine that, at some time later, I gather those same pieces of wood together again and assemble them in the appropriate way, thus giving rise to a new table. According to structural hylomorphism's diachronic theory of composition, we now have at least a few partially

⁶⁵ For Johnston, since he does not take the relevant unifying relation to be a proper part of the statue, this would be a case of two material objects that overlap with respect to every one of their parts, not just their material parts. For evidence that Johnston does in fact think that there would be two entirely overlapping material objects in such cases, see Johnston, "Hylomorphism", 664-672; Johnston, "Constitution", pp. 653-663.

overlapping material objects: we have each of the material components of the table (various pieces of wood) and we have the table itself, which is composed of all of those same parts, along with a certain form or structure, but is not identical to them.⁶⁶ Now imagine that after having assembled the table I proceed to throw that table through a different window, breaking that one as well. What should we say has broken the window in this case? It seems that, once again, we have at least a few candidates for the cause of the window's breaking. Did the parts of the table collectively break the window? Did the table, which is numerically distinct from those parts, do it? Or, did *both* the parts of the table collectively and the table itself break the window? Once again, it seems hard to say that it was caused by one of these candidates *rather than* the other. Both the parts of the table collectively and the table itself were there at the time, and they each had the requisite mass and velocity to do the job. But if it was caused by both, this would seem to causally overdetermine the effect, just like in the case of the statue and the clay. What this second scenario shows us is that there was nothing special about the statue and the clay in the first scenario. The fact that in both scenarios there are multiple, at least partially overlapping, material objects is what produces the puzzle. And so by committing themselves to that claim, Neo-Aristotelian structural hylomorphists would also seem to be committed to a certain sort of systematic, and, indeed, ubiquitous, causal overdetermination.

As I see it, there are only five ways to respond to these sorts of causal overdetermination cases: (1) deny the existence of the whole, (2) deny the existence of the parts, (3) deny that the whole causes the relevant effect, (4) deny that the parts cause the relevant effect, or (5) admit the existence of systematic causal overdetermination, and give an explanation for why this result is unproblematic. Strategies (1) and (2) are versions of eliminativism; they resolve the threat of

⁶⁶ Once again, for Johnston the relevant unifying relation would not be a proper part of the table, but it should be clear that the same puzzle would arise all the same.

overdetermination by eliminating one or more of the candidates altogether. (2) makes macrophysical wholes into extended simples: things that take up a certain amount of space but have no parts.⁶⁷ (1) makes it so there are no macrophysical wholes at all: only simples acting in concert.⁶⁸ It should be clear by now that neither of these strategies is open to the Neo-Aristotelian structuralhylomorphist, since according to that view there exist both composite wholes and various material objects that serve as their proper parts.

Can the Neo-Aristotelian structuralhylomorphist pursue the third strategy and deny that the whole causes the relevant effect? There are at least a few reasons to think that this strategy will not work. First, one might wonder how the whole could possibly fail to cause the relevant effect. As I pointed out in the example, the statue was in the right place, at the right time, and had the requisite mass to crush my toe. In fact, because it has the clay as a proper part, any feature of the clay that makes it a suitable candidate for the material object that crushed my toe would also seem to be a feature of the statue. Depending on how far we want to pursue (3), there is also the risk that this strategy will result in epiphenomenalizing composite wholes. For if we are forced to deny the causal efficacy of the statue in the scenario above, it seems that we should also be forced to deny its causal efficacy elsewhere, lest we overdetermine its effects there. As a result, (3) might lead us to the conclusion that the statue never causes anything; it is entirely epiphenomenal. Neo-Aristotelian structuralhylomorphists should be concerned about this result.

⁶⁷ For more on extended simples, see, for example: Kris Mcdaniel, "Extended Simples", *Philosophical Studies*, Vol. 133, No. 1 (Mar., 2007): pp. 131-141; Peter M. Simons, "Extended Simples: A Third Way Between Atoms and Gunk", *The Monist*, Vol. 87, No. 3 (Jul., 2004): pp. 371-384.

⁶⁸ For views according to which there are no macrophysical wholes, see, for example: Theodore Sider, "Against Parthood", in Karen Bennett and Dean W. Zimmerman (eds.), *Oxford Studies in Metaphysics*, Vol. 8 (Oxford: Oxford University Press, 2013): pp. 237-293; Ross P. Cameron, "How to Have a Radically Minimal Ontology", *Philosophical Studies*, Vol. 151, No. 2 (Nov., 2010): pp. 249-264. For a view according to which the only macrophysical wholes that exist are organisms, see, for example: van Inwagen, *Material Beings*, pp. 81-97. For a view according to which the only macrophysical wholes that exist are persons, see, for example: Merricks, *Objects and Persons*, pp. 85-117. While each of these authors provides reasons for denying the existence of certain macrophysical wholes, only Merricks is explicitly motivated by the threat of systematic causal overdetermination.

It would entail that composite wholes, the existence of which they have worked so hard to motivate, end up making no causal difference in the world whatsoever.

In his *Objects and Persons*, Merricks takes the argument further and suggests that if wholes never cause anything, and so are necessarily epiphenomenal, we ought to seriously doubt whether such things exist at all.⁶⁹ In this way, Merricks argues that strategy (3) collapses into strategy (1). Merricks's argument here is based on the controversial claim that any existing macrophysical object would have to be non-redundantly causally efficacious in some way. There might be reasons to reject that claim.⁷⁰ But even if the Neo-Aristotelian structuralhylomorphist is able to preserve the existence of their composite wholes in some other way, he or she would still have to contend with the threat of epiphenomenalism.

Can the Neo-Aristotelian structuralhylomorphist pursue the fourth strategy, then, and deny that the parts cause the relevant effect? The main reason for thinking that this strategy will not work either is based on Neo-Aristotelian structuralhylomorphism's commitment to preservationism, as reflected in its diachronic theory of composition. In the first example above, before enlisting the sculptor to create the statue, it was clearly the lump of clay that crushed my toe. In the second example above, before assembling the table, it was clearly the pre-existing parts of that table that collectively broke the window. Now, according to preservationism, when the lump of clay comes to compose, along with a certain relation or structure, the statue, the lump of clay remains in existence upon being structured in the relevant way, and, moreover, undergoes no significant change in either its intrinsic nature or its external behavior. And the same is true of the parts of the table when they come to compose the table. When we focus on this fact, it is hard to see how the lump of clay or the parts of the table could fail to crush my toe

⁶⁹ *Ibid.*, pp. 79-83.

⁷⁰ See, for example, Patrick Toner, "On Merricks's Dictum", *Journal of Philosophical Research*, Vol. 33 (2008): pp. 293-297.

or break the window after they have become parts of a larger whole. They are exactly the same material objects that were there before, and they have maintained all of the same qualities that are relevant for producing the effect. It seems, then, that, precisely because structural hylomorphists are committed to preservationism, they cannot pursue (4).

Perhaps the best way for Neo-Aristotelian structural hylomorphists to respond to my version of Merrick's Overdetermination Argument is to pursue strategy (5): admit the existence of systematic causal overdetermination, and explain why the sort of causal overdetermination involved in these sorts of cases is of an unobjectionable sort – even if it is systematic.⁷¹ Here the Neo-Aristotelian structural hylomorphist would have to give some reason to think that, on her account, the sort of causal overdetermination that results from the joint causal efficacy of a whole and its parts is less problematic than it appears. One way of deproblematizing causal overdetermination is to identify composite wholes with their parts. For, if a composite whole is identical to its parts, then for the whole to cause some effect *just is* for the parts to cause that effect.⁷² But this way of pursuing strategy (5) is not available to the Neo-Aristotelian structural hylomorphist, precisely because she denies that a composite whole is identical to the material objects of which it is composed.⁷³ What reason, then, can the Neo-Aristotelian structural

⁷¹ This tends to be the most popular way of responding to Merricks's own overdetermination argument. For some examples of this sort of reply, see: Korman, *Objects*, pp. 194-202; Steinvör Thöll Árnadóttir, "Overdetermination and Elimination", *International Journal of Philosophical Studies*, Vol. 23, No. 4 (2015): pp. 479-503; Eric Yang, "Eliminativism, Interventionism, and the Overdetermination Argument", *Philosophical Studies*, Vol. 164, No. 2 (Jun., 2013): pp. 321-340; Amie L. Thomasson, "Metaphysical Arguments Against Ordinary Objects", *The Philosophical Quarterly*, Vol. 56, No. 224 (Jul., 2006): pp. 340-350; John W. Carroll and William R. Carter, "An Unstable Eliminativism", *Pacific Philosophical Quarterly*, Vol. 86, No. 1 (Mar., 2005): pp. 13-15; Theodore Sider, "What's So Bad About Overdetermination?", *Philosophy and Phenomenological Research*, Vol. 67, No. 3 (Nov., 2003): pp. 719-726; Eric T. Olson, "The Ontology of Material Objects: Critical Notice of *Objects and Persons*", *Philosophical Books*, Vol. 43, No. 4 (Oct., 2002): pp. 292-299. Merricks himself considers this strategy in more detail in his *Objects and Persons*, pp. 66-79.

⁷² This strategy was suggested to me by Megan Wallace (see her "The Many Advantages of Composition as Identity", Unpublished Manuscript, for more on this solution).

⁷³ This is part of Neo-Aristotelian structural hylomorphism's rejection of Classical Extensional Mereology. See, for example: Koslicki, *Structure of Objects*, Chapter Three.

hylomorphist give for thinking that the sort of causal overdetermination illustrated above is of an unobjectionable sort?

When describing a similar worry for her view, one pertaining to the properties of a composite whole and the properties of its parts, Koslicki asserts that, if there is some sort of overdetermination here, it is of a “benign” sort.⁷⁴ But in order to make this reply work, Koslicki needs to offer an account of why this sort of overdetermination is merely benign. Koslicki suggests that the best explanation for what goes on in these cases is that the whole causes the effect *because* the parts cause the effect: the whole “inherits” certain causal powers and properties from its parts.⁷⁵ But here it sounds as if the whole is not actually doing any of the causal work. All of the causal work is being done by the parts, and we are able to say that whole causes the effect, in some sense, only because it is intimately related to something that is, strictly speaking, the cause of that effect. This, then, is not a defense of (5), but of (3), and so Koslicki is left without a principled reason for asserting that the sort of causal overdetermination outlined in the scenarios above is of a benign sort. To my knowledge, no other Neo-Aristotelian structural hylomorphist has offered any sustained reply to this sort of objection. Which is not to say that there is no possible way for the Neo-Aristotelian structural hylomorphist to pursue the fifth strategy for responding to my formulation of the causal overdetermination argument. Perhaps there is. But I hope to have shown that it is not an easy route for the Neo-Aristotelian structural hylomorphist to take. And unless he or she can make this solution work, the threat of overdetermination looms large.

⁷⁴ *Ibid.*, pp. 177-179.

⁷⁵ *Ibid.*, p. 177-178, 185-186. See also, Kathrin Koslicki, “Constitution and Similarity”, *Philosophical Studies*, Vol. 117, No. 3 (Feb., 2004): pp. 327-363. Based on what she says there, I think that Koslicki’s preferred solution to something like Merrick’s Overdetermination Argument might be very close to the one Catherine Sutton proposes in her “The Supervenience Solution to the Too-Many-Thinkers Problem”, *Philosophical Quarterly*, Vol. 64, No. 257 (Oct., 2014): pp. 619-639. But to my knowledge, neither Koslicki, nor any of the other Neo-Aristotelian structural hylomorphists featured above, have explicitly addressed the sorts of worries that I have raised here.

In concluding this section, I would like to briefly say a bit about what I take to be the source of the problem for Neo-Aristotelian structural hylomorphism. I have argued that the Neo-Aristotelian structural hylomorphist's commitment to the diachronic theory of composition formulated above introduces a certain sort of systematic causal overdetermination. I have also shown that the Neo-Aristotelian structural hylomorphist's commitment to that diachronic theory of composition is based on its commitment to preservationism, and that at least some Neo-Aristotelian structural hylomorphists explicitly assent to that view. Notice that if Neo-Aristotelian structural hylomorphists were to forego their commitment to preservationism, and, instead pair their hylomorphic account of material objects with either alterationism or annihilationism, then there would be at least a few more ways for them to avoid systematic causal overdetermination. For instance, if a structural hylomorphist were to espouse annihilationism, then the fact that the pre-existent parts of the table are able to break the window before the construction of the table itself does not entail that they can do so afterwards. For according to annihilationism, those parts have ceased to exist by the time the table is thrown through the window. And it would be at least open to the structural hylomorphist to say that the new parts that replace them behave much differently. Alternatively, if the structural hylomorphist were to espouse alterationism, then perhaps the significant change that material objects undergo when they become parts of larger composites includes a sort of "surrendering of agency" to the whole, such that the whole itself becomes the only thing that can properly be said to break windows and the like.⁷⁶

Why not, then, abandon preservationism in favor of one of the other diachronic theories of composition? One reason for being wary of alterationism and annihilationism is that they are both pretty radical theories of composition. It would certainly be a very bold claim to say that the

⁷⁶ For an example of this sort of strategy, see: Toner, "Emergent Substance".

pieces of wood that are used to construct a table undergo significant changes in their behavior or even cease to exist upon that table's creation! Perhaps, then, a proponent of either view would have to say that the sort of mereological composition that gives rise to numerically distinct, composite wholes is rare. For instance, he or she might have to deny the existence of things such as tables.⁷⁷

However, I would like to suggest that Neo-Aristotelian structural hylomorphists tend to be preservationists for another reason. I think that once one is committed to a conception of form as a polyadic relation or a structure, then a commitment to preservationism follows as a natural consequence of one's view.⁷⁸ For, on the face of it, a relation or a structure would seem to be the sort of thing that is added to or applied to already existing things, depending on them for its continued existence, rather than having its own independent existence and identity that it might be said to bestow on that which it relates or structures. Now, perhaps I am wrong about that. Perhaps a relation could be ontologically prior to its relata in the relevant way.⁷⁹ And perhaps a structure could be ontologically prior to those objects of which it is the structure. But on the sort

⁷⁷ Which would not be unprecedented, since, as I mentioned earlier, both van Inwagen and Merricks deny the existence of such things while also accepting the existence of other composite wholes.

⁷⁸ It should be noted that at least two of the Neo-Aristotelian structural hylomorphists discussed above are willing to grant the possibility that a composite whole might be ontologically prior to at least some its parts, rather than the other way around. So, for instance, later on in his article, Johnston states that "Hylomorphism does not itself entail that the hylomorphic whole is ontologically dependent on its parts. There can be genuine parts that are not independent of the whole" (Johnston, "Hylomorphism", p. 678; see, also: Johnston, "Parts and Principles", pp. 133, 139). And in a more recent article on the topic, Fine remarks, "[I]t seems to me that some basic generative operations are in fact *decompositional*. Far from serving to account for the identity of a whole in terms of its parts, they serve to account for the parts in terms of the whole" (Fine, "Towards a Theory of Part", p. 585). If Johnston and Fine are right to suggest that Neo-Aristotelian structural hylomorphism is compatible with the claim that some wholes are ontologically prior to their parts, then, while this is not exactly the same as saying that the relation or structure of a composite whole is ontologically prior to that whole's material constituents, the end result would still be a rejection of preservationism. Perhaps, then, an advocate of the view can reject preservationism after all. In response, I would first point out that both of these Neo-Aristotelian structural hylomorphists espouse a relationalist conception of substantial form rather than a structuralist one. And it is hard for me to see how any material object could be annihilated merely by coming to be related to some other material object (see, also, the quotation from Koslicki above). But perhaps there are such object-destroying relations. My larger concern is that such a view of relations would mark a significant departure from the Aristotelian program that Johnston and Fine seem to want to defend. I say more about this in what follows.

⁷⁹ I take it that this is the view of "Ontic Structural Realists" (see, for example, James Ladyman, Don Ross, David Spurrett, and John Collier, *Everything Must Go: Metaphysics Naturalized* (Oxford: Oxford University Press, 2007).

of broadly Aristotelian picture that Johnston, Fine, Koslicki and Jaworski seem to want to preserve, this is not how relations and structures are construed. On any broadly Aristotelian picture of the world, relations are ontologically posterior to their relata.⁸⁰ And if structures are at all like relations, then they too would be ontologically posterior to the objects that are structured.⁸¹ I submit, then, that it is their conception of form as something like a polyadic relation or a certain type of structure, which, given an Aristotelian conception of relations, would be ontologically posterior to a certain set of material objects, that ultimately gives rise to systematic causal overdetermination for Neo-Aristotelian structural hylomorphism. And so I would like to call the sort of objection that I have outlined here my *Posteriority Objection* to Neo-Aristotelian structural hylomorphism. If we are at all concerned about the threat of systematic causal overdetermination, then I think that this Posteriority Objection is sufficient motivation for hylomorphists to search for an alternative conception of substantial form - one that might be seen to avoid these sorts of implications.⁸²

⁸⁰ Based on what he says in his *Categories*, it is clear that, on Aristotle's view, *relations* are, as members of a certain category of accidents, ontologically posterior to members of the substance category (see: Aristotle, J. L. Akrill (trans.), *Categories*, in Jonathan Barnes (ed.), *The Complete Works of Aristotle*, Vol. 1 (Princeton, NJ: Princeton University Press, 1984): pp. 10-14). As a result, I think that any view that takes relations or structures to be ontologically prior to substances is a view that significantly departs from this basic Aristotelian schema.

⁸¹ Verity Harte attributes to Plato the view that structures are ontologically prior to the entities that are structured (see, for, example, Harte, *Plato on Parts and Wholes*, ch. 4). I take it that such a view of structures is only possible if we accept a Platonic theory of universals.

⁸² While I have focused on issues related to causal overdetermination here, I think that the fact that substantial forms are ontologically posterior to the material component(s) of their composite wholes according to Neo-Aristotelian structural hylomorphism also introduces some other significant concerns for the view. For example, I think the ontological posteriority of structure is what gives rise to David Oderberg's "Content-Fixing Problem" (see: Oderberg, "Is Form Structure?", in Daniel D. Novotny and Lukas Novak (eds.), *Neo-Aristotelian Perspectives in Metaphysics* (New York: Routledge, 2014): p. 170). I also think that granting the existence of partially overlapping, numerically distinct material objects makes Neo-Aristotelian structural hylomorphism susceptible to Peter Unger's "Problem of the Many" (see, for example: Peter Unger, "The Problem of the Many", *Midwest Studies in Philosophy*, Vol. 5, No. 1 (Sep., 1980): pp. 411-467; Inman, "Substantial Priority", pp. 182-186; Korman, "Ordinary Objects"; Toner, "Emergent Substance", p. 292; Korman, *Objects*, Ch. 12). Unfortunately, I do not have room to go into these concerns here.

1.3.2 Reducibility and Redundancy

According to Koslicki and Jaworski (but not Johnston and Fine) the substantial form of a composite material object, understood as the structure that is realized or instantiated in its material constituents, is something more than just a relation or set of relations. But if a structure is supposed to be something more than a relation or a set of relations, we ought to wonder just what that something more is. Given that there *are* spatial and causal relations between a composite whole's material constituents, what is that object's structure if not just those relations? If a structure is *not* a set of spatial and causal relations, how is it related to these entities, and to what ontological category does *it* belong? The worry here is that talk of "the structure of the whole" might, in the end, just be a figurative way of referring to a shifting set of lower-level relations between micro-physical parts. Call this the *Reducibility Objection* to Neo-Aristotelian structural hylomorphism. In a recent article criticizing contemporary Neo-Aristotelian structural hylomorphism, Howard Robinson nicely describes this sort of worry:

It is sufficient for the concept of structure to be applicable that elements be appropriately related in the world, and these relations can be characterized without using the notion of structure. This could be done by specifying the spatio-temporal location of the elements and their causal influence on each other. If [this] is correct, it looks as if, though our structural concepts are well grounded in reality, structures are not part of the basic furniture of the world; by the causal criterion of concrete reality, they contribute nothing over and above the 'forces' of physics, and, as entities, they are nothing above their constituents and their spatiotemporal and causal relations.⁸³

As I see it, the most pressing concern for Neo-Aristotelian structural hylomorphism here is that it might, upon further scrutiny, end up collapsing into some other already well-entrenched metaphysical view. If a structure *just is* the spatial and causal relations that hold between a

⁸³ Howard Robinson, "Modern Hylomorphism and the Reality and Causal Power of Structure: A Skeptical Investigation", *Res Philosophica*, Vol. 91, No. 2 (Apr., 2014): p. 210. See also: Donald C. Williams, "Form and Matter, I", *The Philosophical Review*, Vol. 67, No. 3 (Jul., 1958): pp. 292, 294 and 295; Katherine Hawley, "Review of Kathrin Koslicki, *The Structure of Objects*", *International Studies in the Philosophy of Science*, Vol. 24, No. 3 (Jan., 2011): p. 338.

composite whole's material constituents, and these relations are, as Johnston and Koslicki suggest, universals rather than particulars, then perhaps Neo-Aristotelian structural hylomorphism is just an elaboration and defense of David Armstrong's account of structural properties or structural universals.⁸⁴ On the other hand, if the relevant spatial and causal relations are, as Fine and Jaworski suggest, trope-like particulars, then perhaps Neo-Aristotelian structural hylomorphism is just a more sophisticated version of the bundle theory of material objects.⁸⁵ Either way, Neo-Aristotelian structural hylomorphism risks losing its novelty; it would have nothing significant to add to contemporary discussions.

Consider, first, Armstrong's account of structural properties or structural universals. In *A World of States of Affairs*, Armstrong explains that the most basic entities that exist are states of affairs,⁸⁶ and the most basic states of affairs are those that involve a single particular instantiating

⁸⁴ For David Armstrong's account of structural universals, see, for example: D. M. Armstrong, *Universals and Scientific Realism, Vol. II: A Theory of Universals* (Cambridge: Cambridge University Press, 1978): pp. 68-71; D. M. Armstrong, *A World of States of Affairs* (Cambridge: Cambridge University Press, 1997): pp. 32-37; D. M. Armstrong, *Sketch for a Systematic Metaphysics* (Oxford: Oxford University Press, 2010): pp. 29-31. I will briefly recapitulate some of this material here, but I will also have more to say about Armstrong's views in Chapter Two.

⁸⁵ By bundle theory here I mean the view that material objects are composed of nothing but property-tropes. For versions of this sort of bundle theory, see, for example: Donald C. Williams, "On the Elements of Being: I", *The Review of Metaphysics*, Vol. 7, No. 1 (Sep., 1953): pp. 3-18; Donald C. Williams, "On the Elements of Being: II", *The Review of Metaphysics*, Vol. 7, No. 2 (Dec., 1953): pp. 171-192; Keith Campbell, *Abstract Particulars* (Oxford: Blackwell, 1990); Peter M. Simons, "Particulars in Particular Clothing: Three Trope Theories of Substance", *Philosophy and Phenomenological Research*, Vol. 54, No. 3 (Sep., 1994): pp. 553-575; Arda Denkel, *Object and Property* (Cambridge: Cambridge University Press, 1996); Arda Denkel, "On the Compresence of Tropes", *Philosophy and Phenomenological Research*, Vol. 57, No. 3 (Sep., 1997): pp. 599-606; Peter M. Simons, "Farewell to Substance: A Differentiated Leave-Taking", *Ratio*, Vol. 11, No. 3 (Dec., 1998): pp. 235-252; Peter M. Simons, "Identity Through Time and Trope Bundles", *Topoi*, Vol. 19, No. 2 (Dec., 2000): pp. 147-155; Jonathan Schaffer, "The Individuation of Tropes", *Australasian Journal of Philosophy*, Vol. 79, No. 2 (Jun., 2001): pp. 247-257; Anna-Sofia Maurin, *If Tropes* (Dordrecht: Kluwer Academic Publishers, 2002); Douglas Ehring, *Tropes: Properties, Objects, and Mental Causation* (Oxford: Oxford University Press, 2011); Markku Keinänen, "Tropes—The Basic Constituents of Powerful Particulars?", *Dialectica*, Vol. 65, No. 3 (Sep., 2011): pp. 419-450. For discussion, see, for example: Robert K. Garcia, "Bundle Theory's Black Box: Gap Challenges for the Bundle Theory of Substance", *Philosophia*, Vol. 42, No. 1 (Mar., 2014): pp. 115-126; Robert K. Garcia, "Tropes and Dependency Profiles: Problems for the Nuclear Theory of Substance", *American Philosophical Quarterly*, Vol. 51, No. 2 (Apr., 2014): pp. 167-176. I will briefly recapitulate some of this material here, but I will also have much more to say about bundle theory in Chapter Two.

⁸⁶ Armstrong, *A World of States of Affairs*, p. 1.

a single property.⁸⁷ Here properties are understood as immanent universals,⁸⁸ and the state of affairs involving some particular, *x*, and some universal, *F*, *just is* *x*'s being or instantiating *F*.⁸⁹ According to Armstrong, there are, in addition to these atomic states of affairs, certain molecular or complex states of affairs.⁹⁰ States of affairs are complex when they include more than one particular (for example, the state of affairs involving two particulars joined by some relation) or more than one property (for example, the state of affairs involving one particular instantiating two or more properties at the same time⁹¹), or both. States of affairs that involve both a multitude of particulars and a multitude of properties or relations are what we might call structural states of affairs, and the properties that give rise to such states of affairs, structural properties. In an earlier work, Armstrong defines 'structural property' as follows:

A property, *S*, is structural if and only if proper parts of particulars having *S* have some property or properties, *T*... not identical with *S*, and this state of affairs is, in part at least, constitutive of *S*. It will be seen that a structural property must be complex.⁹²

Importantly, some structural properties include among their constituents, in addition to various properties or monadic universals, certain relations between the particulars that comprise the structural state of affairs. As Armstrong explains,

Structural properties may or may not involve certain relations among the parts of the particulars having the properties. Consider the putative property, being one kilogram in mass exactly. This is a structural property. The proper parts of one-kilogram particulars are not one-kilogram particulars. These parts, individually weighing less than one kilogram, together make up an object of mass one kilogram. But no particular relations between these parts seem involved in the object having this property. For instance, the parts may be scattered parts. Compare this with being a hydrogen atom or being a certain tartan pattern. Not every particular which contains the essential constituents of a hydrogen atom is, or even contains, a hydrogen atom. To be a hydrogen atom, a particular must include an electron and a proton. But, more than this, the electron and proton must

⁸⁷ *Ibid.*

⁸⁸ *Ibid.*, p. 22.

⁸⁹ *Ibid.*, pp. 1, 28-29.

⁹⁰ *Ibid.*, pp. 1, 19, 122.

⁹¹ Armstrong calls these states of affairs "thick particulars" (see, for example: *Ibid.*, pp. 124-125).

⁹² Armstrong, *Universals and Scientific Realism*, p. 69.

stand in certain relations. The particular made up of an electron in atom A and a proton in atom B is not a hydrogen atom. To be a token of a certain tartan pattern, it is not necessary that a particular include certain sorts of constituents (yellow stripes, etc.). But it is further necessary that the constituents be arranged in a certain way. We will say of the latter type of structural property that it is a relationally structural property. It includes relations among its parts. Properties like being one kilogram in mass will be said to be non-relationally structural properties.⁹³

What is especially significant about this passage in particular is how strikingly close its characterization of “relationally structural properties” comes to Koslicki’s own characterization of structures. Consider once again the following passage from *The Structure of Objects*:

we may think of the formal components associated with a particular kind of whole... as the sorts of entities that provide ‘slots’ to be filled by objects of a certain kind: thus, the formal components belonging to a particular kind of whole will generally specify not only the configuration to be exhibited by the material components in question, i.e., how these objects are to be arranged with respect to one another; they will also usually specify the variety of material components of which the whole in question may be composed, i.e., what sorts of objects can go into the various ‘slots’ provided by the formal components.⁹⁴

Now, there are some significant differences between Armstrong’s and Koslicki’s views. One noteworthy difference is that Armstrong recognizes two forms of composition, mereological and non-mereological, whereas Koslicki recognizes only mereological.⁹⁵ But they both seem to have very similar views about what a structure is, and they both consider such structures to be proper parts of composite wholes. And so it is unclear to me whether Neo-Aristotelian structural hylomorphism does in fact offer a novel or unique account of material objects. Two of the principle features of that account – that there is a structural aspect to material objects, and that that structural aspect is to be construed as a proper part of such objects – were already principle

⁹³ *Ibid.*, pp. 70-71.

⁹⁴ Koslicki, *Structure of Objects*, p. 169.

⁹⁵ See, for example: Armstrong, *A World of States of Affairs*, pp. 122, 126; Koslicki, *The Structure of Objects*, pp. 167-168.

features of Armstrong's own account when he started articulating his views more than thirty years ago.⁹⁶

Consider, also, the bundle theory of material objects. The sort of bundle theory that I have in mind here is built on three fundamental claims: (1) all of the properties of a material object are particulars, rather than universals,⁹⁷ (2) material objects are collections of particular property-instances; that is, each of a material object's particularized properties, or "tropes", is one of its proper parts or constituents, and (3) material objects have no other proper parts or constituents (i.e., there are no bare particulars or substrata of any sort that might be said to underlie the properties of those objects⁹⁸). On this sort of view, my coffee cup, for example, can be exhaustively decomposed into its color, its shape, its mass, its spatiotemporal location, and any other properties that characterize it at any particular time. All of these properties jointly compose or constitute my coffee cup and there is nothing more to the cup than these properties.

Given this characterization of the bundle theory of material objects, it should now be clear that if the structure of an object is a certain sort of property of that object, and if that property is a trope-like particular, then Neo-Aristotelian structural hylomorphism's claim that

⁹⁶ That Koslicki's view, or something very much like it, can be seen as an extension of Armstrong's for precisely this reason is briefly suggested by Harte in her *Plato On Parts and Wholes*, p. 161. It is puzzling to me that Koslicki herself never makes this connection between her view and Armstrong's, even though she cites his work frequently throughout her book.

⁹⁷ There are versions of bundle theory according to which objects are composed of nothing but property-*universals* (see, for example: Bertrand Russell, *An Inquiry into Meaning and Truth* (New York: W. W. Norton & Co, Inc., 1940); James van Cleve, "Three Versions of the Bundle Theory", *Philosophical Studies*, Vol. 47, No. 1 (Jan., 1985): pp. 95-107; Albert Casullo, "A Fourth Version of the Bundle Theory", *Philosophical Studies*, Vol. 54, No. 1 (Jul., 1988): pp. 125-139; John O'Leary-Hawthorne and J.A. Cover, "A World of Universals", *Philosophical Studies*, Vol. 91, No. 3 (Sep., 1998): pp. 205-219; Paul, "Logical Parts"; Paul, "Coincidence as Overlap"; L. A. Paul, "Building the World From its Fundamental Constituents", *Philosophical Studies*, Vol. 158, No. 2 (Mar., 2012): pp. 250-255; L. A. Paul, "A One Category Ontology", in John A. Keller (ed.), *Being, Freedom, and Method: Themes from van Inwagen* (Oxford: Oxford University Press, 2016): forthcoming), but in order to fill out both horns of my dilemma for Neo-Aristotelian structural hylomorphism, here I will focus on the property-*trope* versions of the view.

⁹⁸ For some helpful overviews of the different versions of substratum theory, see, for example: Jeffrey E. Brower, *Aquinas's Ontology of the Material World: Change, Hylomorphism, and Material Objects* (Oxford: Oxford University Press, 2014): pp. 35-41, 130-151; Michael J. Loux, *Metaphysics: A Contemporary Introduction*, Third Edition (New York: Routledge, 2006): pp. 84-120; Michael J. Loux, *Substance and Attribute: A Study in Ontology* (Dordrecht, Holland: D. Reidel Publishing, 1978): pp. 107-112, 112-115, 140-152. For more on bare particularism in particular, see section 2.3 below.

that structure is itself a part of the object is a claim that bundle theorists already accept. Neo-Aristotelian structural hylomorphism's purportedly novel thesis would really just be a way of specifying claim (2). As Merricks puts it, discussing Koslicki's view in particular,

trope theorists say that all of an object's properties are parts of that object. So they say that an object's structure – assume its structure is a property – it itself a part of that object... So they agree with Koslicki's claim that an object's structure is a part of that object. Thus her claim turns out to be just one predictable upshot of trope theory, as opposed to a new account of the nature of objects, or a bold hypothesis about how an object's structure differs from its other properties. In this way, I think that trope theory makes Koslicki's claim less exciting than it originally seemed to be.⁹⁹

Moreover, even if structure turns out to be more like a relation or a set of relations, these too are already taken to be parts of material objects according to bundle theory. For example, consider the following description of Peter Simons's bundle theory of material objects:

Everyday substances will however be more than just a single trope bundle. Everyday material objects have smaller material objects as their material parts: a human being has limbs, organs, tissues, cells, etc. as parts, and all of these interacting parts are themselves substances and there are tropes, unary *and relational*, linking and characterising them. A human being is at any one time a hugely complex whole of interrelated parts *in static and dynamic relations to one another*... Only objects without parts in the common or garden sense are pure bundles of tropes and nothing else. Everything else is a whole of parts which are wholes of parts which are... etc. until we come to the parts which are as they are not because they have parts but because they are bundles of tropes.¹⁰⁰

What this passage shows us is that even Neo-Aristotelian structural hylomorphism's "hierarchical" view of material objects, according to which the complement of a material object's structure is a certain set of material constituents, which are themselves structured wholes, can be re-described in bundle-theoretic terms.

Now, perhaps what distinguishes Neo-Aristotelian structural hylomorphism from the bundle theory of material objects is that the former claims that the only properties of material objects that are included among the proper parts of those objects are the spatial and causal

⁹⁹ Merricks, "Review of *The Structure of Objects*", p. 305.

¹⁰⁰ Simons, "Farewell to Substance", p. 244.

relations that hold between their material constituents. We might also say that what distinguishes Neo-Aristotelian structural hylomorphism from the bundle theory of material objects is that it is not committed to the claim that all of the parts of a material object are ultimately decomposable into property-tropes. However, despite these important differences, it is clear from the aforementioned that if an object's structure turns out to be nothing more than a certain sort of property, or the spatial and causal relations that hold between that object's material constituents, and if that property or those spatial and causal relations turn out to be trope-like particulars, then two of the principle features of Neo-Aristotelian structural hylomorphism – that there is a structural aspect to material objects, and that that structural aspect is to be construed as a proper part of such objects – are already principle features of the bundle theory of material objects, and were principle features of that view when D.C. Williams first began formulating it over fifty years ago. As a result, unless Neo-Aristotelian structural hylomorphists can somehow distinguish the sorts of structures that they have in mind from the sorts of properties or spatial and causal relations between parts already recognized as constituents of material objects by Armstrong and bundle theorists, the view risks collapsing into one or the other of these already well-entrenched metaphysical views. In other words, instead of offering a new and exciting view of material objects, Neo-Aristotelian structural hylomorphism might end up being simply redundant.

I think that there are at least two strategies available to the Neo-Aristotelian structural hylomorphist for resisting the reducibility of his or her view to one of the aforementioned, well-entrenched metaphysical views. Unfortunately, neither one of these strategies is without significant costs. First, the structural hylomorphist could say that, while a given structure is not identical to any particular set of relations, it is, at any time that it exists, *composed* of various relations. Structure might, then, be some sort of *sui generis*, higher-order property that has lower-

level relations as parts. We have already seen that Neo-Aristotelian structural hylomorphists reject the composition as identity thesis for composite wholes and their constituents.¹⁰¹ And there are a handful of other contemporary metaphysicians who have rejected it (for various reasons) as well.¹⁰² So it is at least open to the Neo-Aristotelian structural hylomorphist to say that any particular structure is a sort of complex, *sui generis* property composed of various relations without being identical or reducible to any one of them or even any set of them.

I have two concerns for this sort of approach. First, inasmuch as the structural hylomorphist makes structure out to be a complex, higher-order property, it would seem thereby to make that structure dependent for its existence on the sorts of lower-level relations of which it is composed. Keeping in mind that each of the particular lower-level relations of which the structure is composed is itself an accidental property (a property that the object could lose while remaining the same object), this approach would entail that a substantial form, the essential component of any material object, necessarily depends for its existence (and perhaps even for its identity) on accidental properties, various non-essential features of the object. But this schema would seem to have things precisely backwards. If the substantial form of an object is its most essential component, that which makes it what it is and to be of a certain kind, should not the various accidental features of that object stem from or be grounded in its existence, rather than the other way around? Should not the fact that I have two legs be explained by the fact that I have a certain essential form, and not vice versa?

¹⁰¹ I emphasized this fact in my discussion of overdetermination cases, on p. 25 above.

¹⁰² For other accounts of material objects that reject the composition as identity thesis, see, for example: Peter van Inwagen, "Composition as Identity", *Philosophical Perspectives*, Vol. 8 (1994): pp. 207-220; Merricks, *Objects and Persons*, pp. 20-28; Kris McDaniel, "Against Composition as Identity", *Analysis*, Vol. 68, No. 2 (Apr., 2008): pp. 128-133. For more on composition as identity, see the essays in Aaron J. Cotnoir and Donald L. M. Baxter (eds.), *Composition as Identity* (Oxford: Oxford University Press, 2014).

One way to get around the previous implication would be to combine a mereological conception of structure, a rejection of the thesis that composition is identity, and the claim, which was mentioned briefly in the previous section, that some wholes might be ontologically prior to their parts.¹⁰³ According to this suggestion, a substantial form, as structure, would be a whole, composed of, but not identical to, various spatial and causal relations, but it would also be ontologically prior to those relations, in that each of those spatial and causal relations would depend for its existence on the whole of which it is a part. I actually think this is a promising route for the structural hylomorphist to take. It is not a route that any of the Neo-Aristotelian structural hylomorphists considered above do take, and it might require them to abandon certain features of their views, but it could be done. The only concern I have for this suggestion is that it ends up making substantial forms mereologically complex. Even if we reverse the priority relations between structures and their parts, it is still the case, on this model, that substantial forms have parts. And this complexity within a substantial form might be seen to undermine its ability to unify the material constituents and the species-specific capacities of the larger substance of which it is part.¹⁰⁴

A second strategy for resisting the Reducibility Objection would be to say that structure is both distinct from, and ontologically prior to, any spatial or causal relations that hold between the material constituents of a composite object. The structural hylomorphist pursuing this strategy would, then, deny all of the following: (1) that a structure is a relation, (2) that a

¹⁰³ For views according to which at least some composite wholes are ontologically prior to their parts, see, for example: Harte, *Plato on Parts and Wholes*, pp. 158-167, 273-281; Jonathan Schaffer, "Monism: The Priority of the Whole", *The Philosophical Review*, Vol. 119, No. 1 (Jan., 2010): pp. 31-76; Inman, "Substantial Priority". As I pointed out earlier, both Mark Johnston and Kit Fine consider this possibility as well (see footnote 62 above).

¹⁰⁴ In a famous passage from Book I, Chapter 5 of his *De anima*, Aristotle argues that in order to unify the material parts of a substance, a substantial form must be itself maximally unified – that is, without parts (see: Aristotle, J. A. Smith (trans.), *On the Soul*, in Jonathan Barnes (ed.), *The Complete Works of Aristotle*, Vol. 1 (Princeton, NJ: Princeton University Press, 1984): p. 655). For a critique of Aristotle's argument here, as well as a list of the relevant texts, see Koslicki, *The Structure of Objects*, pp. 195-196. I discuss the simplicity of substantial form in more detail in Chapter Three.

structure is a set of relations, and (3) that a structure is composed of, but not identical to, a set of relations. Instead, he or she would espouse something like: (4) that a structure underlies or explains the existence of certain relations, but is itself a member of some non-relational ontological category. At least one of the quotations from Koslicki featured above would seem to advocate such a view (I include it here again for emphasis):

The evidence reviewed above suggests that structures are at least in some contexts treated as objects, rather than as properties or relations. At the same time, even when structures are so treated, they are always also closely linked with certain properties and relations which elements in the domain come to exhibit as a result of occupying the positions made available by the structure in question; but these properties and relations are nevertheless in these contexts not identified with the structures with which they are associated.¹⁰⁵

The downside to such a “solution” to the problem is that it leaves the ontological status of structure, the centerpiece of the Neo-Aristotelian structural hylomorphic account of material objects, a complete mystery. If a material object’s structure is not one of its properties, or any of the spatial or causal relations that hold between its material constituents, then what is it? The quotation from Koslicki featured above seems to suggest that she might prefer a conception of structure according to which a material object’s structure is itself an object, albeit one that is different in kind from the other objects that serve as the material constituents of the whole. If structures are indeed objects, then this might explain why Koslicki is so adamant in her claim that they ought to be construed as proper parts of composite material objects. It might also explain why she does not feel the need to introduce a distinctive non-mereological form of composition in order to include them in her account of material objects, as Armstrong does for his structural universals. But in order for this strategy to work, Koslicki or other Neo-Aristotelian structural hylomorphists will need to say more about what sort of object they take structures to be and why it is that they must be construed as objects rather than as properties or relations. Until

¹⁰⁵ *Ibid.*, p. 252.

we are given such an ontology of structure, we are left wondering how an object's structure could be anything but one of its properties or one or more of the causal or spatial relations that hold between its material constituents. And so, until then, the threat of redundancy remains for Neo-Aristotelian structural hylomorphism.

1.3.3 Fragility and Persistence

One of the most salient, and yet one of the most philosophically troublesome, features of the natural world that form, and in particular, substantial form, has traditionally been posited to explain is identity over time.¹⁰⁶ As I will argue in Chapter 3, Thomas Aquinas, for example, holds that substantial form is both the ground and explanation for the continued existence of material substances through various sorts of changes in their other constituents. Consider, for example, my cat, Nico. Nico was once a small, frail kitten that we found underneath the hood of a truck. Later on, Nico got bigger and stronger, faster and smarter. He ate, drank, shed his fur, and, in an unfortunate accident, lost most of his tail. Nico still has black fur, but most of his other features have changed over time. In addition, Nico has, by now, shuffled through various material constituents at a rapid rate, such that none that he once had now remain a part of him. According to Aquinas, what makes it the case that Nico is the very same cat now as that kitten we once found underneath the hood of a truck is the fact that Nico's various material constituents are actualized by the very same substantial form (which, in Nico's case, is a particular feline soul). And a similar story can be told for other material substances. What makes a particular substance the very same particular substance at some later time is the continued existence of a

¹⁰⁶ For an excellent overview of the role of substantial form in medieval accounts of the identity over time of composite material substances, see: Robert Pasnau, *Metaphysical Themes 1274-1671* (Oxford: Oxford University Press, 2011): Ch. 29.

particular substantial form. This is typically seen as one of the principal explanatory advantages of hylomorphism.¹⁰⁷

Now, it is not clear to me that contemporary hylomorphists *must* follow Aquinas and others on this score. It is not an essential feature of a hylomorphic account of material objects that it provide a formal explanation for identity over time. However, there are good reasons to think that a hylomorphic account of material objects *would* be able to provide such an explanation. For, if the form of a composite material object is that which brings it into existence, makes it what it is, places it in its natural kind, and grounds its kind-specific capacities, then it would also seem to follow that if that composite material object is to maintain its identity over time, it ought to at least have the same form throughout.

As I will investigate in more detail below, each of the four Neo-Aristotelian structural hylomorphists considered above has something to say about identity over time. Each of them seems to want to offer *some* sort of formal explanation for the persistence of composite material objects. But is a conception of form as a relation or as a structure capable of preserving this explanatory virtue of hylomorphism? Can Neo-Aristotelian structural hylomorphists maintain both that form is best understood as a material object's structure or the unifying relation that holds between its material parts and that the form of that material object is what grounds and explains its continued existence over time?

Initially, in the example above, it seems clear that Nico has survived a change in not only his material constituents, but also in some of the structural features that his material constituents have exhibited throughout his life. Nico got taller and fatter, recovered from various maladies, picked up new behavioral tendencies, and, later on, sadly, lost his tail. And so, if it is true that

¹⁰⁷ See, for example, Eleonore Stump, *Aquinas* (New York: Routledge, 2003): pp. 44-46. I will have much more to say about Aquinas's account of the persistence of material substances through time in Chapter Three.

Nico's persistence over time is grounded in the persistence over time of his substantial form, then that substantial form cannot be identified with *those* structural features. Which structural features, then, could be said to stay the same? When we look at the particular structural features of any material object, the particular causal and spatial relations that hold between its parts, it is hard to see how any one of them, let alone any subset of them, could remain for very long. Though my cat Nico exhibits a very similar structure to that which his material parts exhibited earlier on, it seems that, strictly speaking, it is not the very same structure.

My third worry for the Neo-Aristotelian structural hylomorphist conception of substantial form, then, is that any particular structure that is realized in the matter of a material substance at any time seems too fragile to ground the persistence of that substance over time. It, too, seems to change, one particular structure succeeding that which came before, no one structure surviving for very long. And without itself remaining the same, there is a real concern here about whether structure can ground the persistence of the substance of which it is part. Thus, the structural hylomorphist's conception of substantial form would appear not to be able to preserve the traditional persistence-grounding role of substantial form, despite the remarks (to be considered in more detail below) of contemporary Neo-Aristotelians to the contrary. Call this the *Fragility Objection* to Neo-Aristotelian structural hylomorphism.

Each of the four versions of Neo-Aristotelian structural hylomorphism that I considered above feature some sort of solution to something like my Fragility Objection. First, Johnston makes a distinction between two sorts of principles of unity:

A form or principle of unity may be static, in that its holding of certain parts requires that the parts it holds of remain as they are, and remain ordered as they are... form or principle of unity may be instead be dynamic, in that its holding of certain parts may allow or require that the parts it holds of vary over time; either by those very parts

undergoing intrinsic change, or by their being replaced with parts of the same kind, or by their being shed without replacement.¹⁰⁸

Here Johnston introduces a concept that will become important later on in my analysis of

Eleonore Stump's view: that of a "dynamic" principle of unity or a "dynamic" structure.

However, it is not clear that this by itself solves the problem. For, as Johnston understands the notion, a dynamic principle of unity is one in which the relations stay the same, but the material *relata* of those relations change over time. And the observation with which I began my formulation of the problem was that in the case of my cat, Nico, the relations that hold between his parts do not stay the same; they themselves change, sometimes dramatically, over time.

Fine's solution to the Fragility Objection involves the postulation of a whole new sort of material object: a "variable embodiment".¹⁰⁹ Earlier I gave a characterization of Fine's view according to which a material object is composed of a set of material constituents and a relation that unifies them. Fine calls these sorts of material objects "rigid embodiments". As is clear from the descriptions above, rigid embodiments are fragile; no rigid embodiment can survive the loss of any of its material constituents or any change in its "principle of rigid embodiment" - the relation that holds those material constituents together. Variable embodiments, on the other hand, are not as fragile; a variable embodiment can survive some changes in its material constituents and some degree of change in its principle of rigid embodiment. This is because a variable embodiment has an additional part, a "principle of variable embodiment", which guarantees the continued existence of that variable embodiment through changes in its material constituents and various principles of rigid embodiment.¹¹⁰

As an illustration of what he has in mind here, Fine offers the following example:

¹⁰⁸ Johnston, "Hylomorphism", p. 663; Johnston, "Constitution", pp. 648-649; Johnston, "Parts and Principles", p. 143.

¹⁰⁹ Fine, "Things and Their Parts", p. 68.

¹¹⁰ *Ibid.*, pp. 68-69.

Here is one way of getting an intuitive grip on the notion of a variable embodiment. Imagine a container into and out of which water flows. We may then distinguish between three things: (a) the container itself, (b) the water that is in it at any given time, and (c) the container with the water in it. We may think of (c) as a single object that has different water as a part at different times. Let us now make two modifications to our conception of the container. First, we suppose that it not merely a passive recipient of the water but somehow determines which water is to be in it at any one time. It plays an active role, as it were, in determining what its content is to be over time. Second, we suppose that the container is not another physical object but something of a more abstract or conceptual nature. Thus the varying contents of the container will be determined by conceptual rather than by physical means.¹¹¹

As Fine explains right before this example, a principle of variable embodiment is more like a quasi-mathematical “function” than a single relation, a set of relations, or a particular structure.¹¹² (His description of the causal role that this principle of variable embodiment plays in the material object of which it is part, however, sounds very similar to the sort of role that Koslicki envisions for structure.¹¹³)

In response to Fine’s proposed solution to the Fragility Objection, I will say just two things. First, there is a worry here that in describing the principle of variable embodiment as having a “conceptual nature” (later on in the article he refers to it as the “intensional element” of a variable embodiment¹¹⁴), Fine seems to suggest that the identity of a variable embodiment depends on certain human conventions or features of human reason rather than having the sort of independent existence characteristic of substances.¹¹⁵ Second, it is worth noting that in his attempt to capture the dynamic character of certain material objects, Fine is forced to supplement, if not altogether replace, his relationalist conception of substantial form with a “functionalist” conception. The substantial form for variable embodiments, then, turns out to be neither a relation nor a structure, but a function. This is an important point. For, as Koslicki

¹¹¹ *Ibid.*

¹¹² *Ibid.*

¹¹³ See pp. 6-7, above.

¹¹⁴ *Ibid.*, p. 73.

¹¹⁵ See Koslicki, *The Structure of Objects*, p. 86 for more on this.

remarks, “from the point of view of those not yet in the grip of the mereological rigidity of traditional sums, it would seem that the material world in general is composed, in the terminology of Fine’s theory, of variable embodiments.”¹¹⁶ In other words, it is Fine’s account of variable embodiments, not his account of rigid embodiments that really describes the sorts of objects with which we are familiar. And so if the conception of substantial form present in that account says that form is neither a relation nor a structure, it may very well be that Fine is not a structural hylomorphist after all. Perhaps his account is closer to the one I will offer in Chapter 4.

Like Johnston and Fine, Koslicki, too, recognizes that material objects persist through various changes in their material constituents:

One of the ways in which a structured whole may change over time is by tolerating the addition, alteration or loss of some of its material components. The table, for example, given the persistence conditions ordinarily ascribed to objects of this kind, need not be constituted of the same legs, the same top or the same hardware throughout its career; the legs, top and hardware in turn need not be constituted of exactly the same wood and metal throughout their career; and so forth...¹¹⁷

And, like Fine, and unlike Johnston, she also recognizes that material objects seem to persist through various changes in their structural features:

Similarly there is of course an endless variety of ways in which the general formal requirements that come with wholes of a specific kind may be manifested in particular objects at particular times; and, depending on the persistence conditions which characterize the objects in question, one and the same mereologically complex object may well tolerate a fair share of structural change in this regard.¹¹⁸

As this passage indicates, Koslicki’s preferred solution to something like my Fragility Objection relies on a distinction between “general formal requirements” and “particular manifestations” of those formal requirements. According to Koslicki, it is the continuity of these general formal

¹¹⁶ *Ibid.*, p. 90.

¹¹⁷ *Ibid.*, p. 189.

¹¹⁸ *Ibid.*

requirements that grounds the persistence of substances over time, not the obviously more fragile particular manifestations of those requirements:

Thus, the material components of which an H₂O molecule consists, viz., the two hydrogen atoms and the single oxygen atom, must always exhibit the relation of chemical bonding, for as long as they compose an H₂O molecule; but the specific way in which they exhibit this configuration of chemical bonding may vary over time, without affecting the existence or identity of the whole in question. In light of these considerations, then, we ought to think of the formal components, as they have been described up to this point, as something closer to determinables, of which particular determinates are represented in a mereologically complex object at each time at which it exists. To what extent structural change is permitted either with respect to the determinable or the determinate manifestation of an object's formal components depends on the persistence conditions that are operative in the particular case at hand.¹¹⁹

Koslicki's distinction between general formal requirements and particular manifestations of those requirements does seem like an important and plausible distinction to make. On the face of it, it does seem that Nico has maintained something like a general feline structure throughout his life, even if the particular way in which he has realized that structure has changed over time.

With that said, I do have some concerns for Koslicki's proposed solution. First, as Koslicki herself admits,¹²⁰ even if the persistence of certain general formal requirements is a *necessary* condition for the continued existence of any material substance, the persistence of those features cannot also be a *sufficient* condition for the continued existence of any *particular* substance. This is because, for Koslicki, forms are universals, not particulars. And so any particular cat will have, as its "general formal part" (i.e., its substantial form) the very same feline structure as any other cat. Koslicki's account might, then, explain why it is that there is the same *type* of substance in existence at two different times, but general formal requirements alone cannot explain why it is the very same *particular* substance that exists at both of those times.¹²¹

¹¹⁹ *Ibid.*, pp. 189-190.

¹²⁰ See: *Ibid.*, p. 191.

¹²¹ At page 191 of *The Structure of Objects*, Koslicki admits as much, granting that "[s]ince the current approach is not addressed directly to the question of how to account for the identity of an object with itself over time, the

My main objection to Koslicki's proposed solution, however, comes in the form of a trilemma. Suppose, first, that it is indeed the case that the various material constituents of my cat Nico continue to meet some general formal requirements throughout Nico's life. The question we must ask, then, is this: is there, in the case of my cat, Nico, some single structure, some single formal part, that persists throughout the whole of his life or not? If, strictly speaking, there is no single structure, no single formal part that persists throughout the whole of his life, only a continuous chain of relevantly similar structures or formal parts, then it is not the case that the persistence of my cat Nico is grounded in the persistence of any particular structure or formal part. If, however, there is some structure that persists throughout the whole of his life, then we must ask one further question: what is the relationship between this structure and the structural features of his various material constituents that have changed over time? If the structure that remains the same over time is identical to, or in any way composed of, these more fragile structural features, then that structure itself changes. If, however, the structure that remains the same over time is not in any way composed of these more fragile structural features, it must instead underlie or stand beside them as a member of some other ontological category. The problem with the former suggestion is that it just pushes the demand for an explanation for the persistence of composite material objects back a step. If the structure of a material object itself changes, what grounds or explains *its* persistence over time? The problem with the latter suggestion is that we have no reason to believe that what underlies or stands beside a material object's more fragile structural features is itself a structure of any kind. This brings us back to the impasse to which we arrived at the end of my discussion of the Reducibility Objection above. As a result, I conclude that Koslicki's conception of substantial form as structure cannot preserve the

resources provided by it by themselves do not yield an account of diachronic identity." In what follows I attempt to show that Koslicki's conception of substantial form not only *does* not provide an account of diachronic identity, but that it *cannot* provide such an account.

role of substantial form as the ground and explanation for the continued existence of composite material objects over time.

Of the Neo-Aristotelian structural hylomorphists that I have considered in this chapter, Jaworski is the only one who explicitly claims that his account of substantial form as structure preserves its traditional role as the ground and explanation for the continued existence of material substances through various sorts of changes. In the case of living things, for instance, Jaworski explains,

The dynamic structure that qualifies something as a living thing is also what enables that thing to persist through time. It is one and the same organism that persists through the constant influx and efflux of matter and energy because of its structure and its dynamic ability to impose that structure on incoming matter and energy.¹²²

Here Jaworski, like Johnston, invokes the concept of a “dynamic structure” to try to explain identity over time. But what is a “dynamic structure”? Is it, like Johnston’s dynamic principle of unity, a complex relation, the relata of which change over time? Is it, like Koslicki’s general formal requirements seem to be, a complex universal, the constituent universals of which change over time? Or is it, like Fine’s principle of variable embodiment, a function, which is in some way prior to any particular relations or structures that hold between an object’s material constituents? As I interpret him, Jaworski intends for his structures to be dynamic in a way that goes beyond the dynamicity of Johnston’s principles of unity, Koslicki’s general formal requirements, or Fine’s functions. For Jaworski, it seems that certain structures are considered dynamic not because they themselves *change* over time, but because they are a *changing* in something else. Earlier we saw that, in various places Jaworski seems to suggest that his structures are not relations or configurations, but *activities*. In his most recent article on the subject, Jaworski pursues this idea in more detail:

¹²² Jaworski, *Structure and the Metaphysics of Mind*, p. 16; Jaworski, “Metaphysics of Structure”, p. 181.

Once a structured individual comes into existence it is essentially and continuously engaged in configuring materials. The materials it configures are precisely those that compose it. When it comes to characterizing the configuring activity of structured individuals, hylomorphists can adopt most of what van Inwagen says about lives, at least when it comes to the configuring activities of living things, the paradigmatic structured individuals. My life is identical to my configuring various fundamental physical materials at various times—an event that has the characteristics van Inwagen attributes to lives, and that has many other characteristics it is business of the biological sciences to describe. *An individual living thing does not configure exactly the same materials for very long since those materials are in constant flux; despite this, the individual maintains itself one and the same through all the changes on account of its ongoing configuring activity. That activity is what unifies various materials into a single individual, both synchronically and diachronically, just as lives do on van Inwagen's account.*¹²³

It seems clear from these remarks that Jaworski's solution to something like my Fragility Objection involves a significant departure from the structuralist views of his contemporary Neo-Aristotelian counterparts. Jaworski refers to that which grounds and explains the identity of a material substance over time as structure, but in this context, it seems that Jaworski's conception of substantial form is not structuralist after all. In order to capture the inherent dynamism of material objects, Jaworski seems to have moved away from structural hylomorphism, and toward a view that I will try to defend in Chapter 4 – a view called hyloenergeism.

All four of the Neo-Aristotelian structural hylomorphists considered in this chapter, then, fail to provide an adequate solution to what I am calling the "Fragility Objection" to the structuralist conception of substantial form. Johnston underestimates the degree to which composite material objects are able to undergo various changes in their structural features. Koslicki offers a partial explanation of the identity of composite material objects over time in terms of general formal requirements, but fails to explain how any particular composite material object can remain the same over time, given that it undergoes various changes in its structural features. Fine and Jaworski do offer their own analyses of identity over time, but in order to capture the degree to which composite material objects undergo changes in their structural

¹²³ *Ibid.*, p. 193, emphasis added.

features, they are forced to adapt their hylomorphic accounts of material objects in such a way that their accounts are no longer clearly versions of structural hylomorphism.

To sum up what I have done so far, in this section of my dissertation I have presented three main objections to Neo-Aristotelian structural hylomorphism: a Posteriority Objection, a Reducibility Objection, and a Fragility Objection. None of these is meant to be a knock-down argument against the view. But I do think that, in light of the concerns for the structural hylomorphist conception of substantial form that I have drawn from my three main objections, there is ample motivation for hylomorphists to look elsewhere for an alternative account. But before responding to that motivation myself and moving onto my preferred account in the chapters that follow, I want to end Chapter 1 by considering one more view – one that fares much better with regard to my three objections than any of the other Neo-Aristotelian views above: Eleonore Stump's explicitly Thomistic brand of structural hylomorphism.

1. 4 Thomistic Structural Hylomorphism

Unlike the Neo-Aristotelian structural hylomorphists I have considered thus far, Stump presents her version of structural hylomorphism as Aquinas's own. And so, since I will ultimately argue that a Thomistic conception of substantial form has the resources to address the concerns that I have raised for Neo-Aristotelian structural hylomorphism, it should come as no surprise that out of all of the structural hylomorphist conceptions of substantial form that I will consider, Stump's comes closest to solving my three objections and preserving all of the main characterizations of substantial form that I will outline in Chapters Two and Three. In what follows, I will first outline the main features of Stump's Thomistic structural hylomorphism, comparing and contrasting her account to the Neo-Aristotelian structural hylomorphisms I considered above. This part of my presentation will be brief. Next, I will offer an evaluation of

Stump's Thomistic structural hylomorphism, comparing and contrasting her responses to my three main objections to structural hylomorphism to those discussed in the previous section. Here the more technical details of Stump's account will be drawn from her responses to these objections.

Like Fine, Koslicki and Jaworski, and unlike Johnston, Stump takes the formal aspect of a material object to be one of its proper parts (though she takes it to be a proper part of a different sort). In introducing Aquinas's "theory of things", she remarks,

...I will take things to include not only substances and artifacts but also at least some of the parts of which substances are constituted. By 'parts' in this context, I mean both what Aquinas calls 'integral parts', such as the hand of a human being or the roof of a house, and also metaphysical parts, such as matter and form, which constitute material things in a way different from the way they are constituted by their integral parts.¹²⁴

Stump, then, espouses both a hylomorphic account of material objects and a mereological conception of that hylomorphic structure. She, like Fine and Jaworski, but unlike Johnston and Koslicki, also takes substantial forms to be trope-like particulars, rather than universals: "

From the fact that Aquinas thinks an angel or a disembodied human soul, each of which is a form, can exist on its own, we can see that he thinks a form can be a particular. In fact, for Aquinas, everything that exists in reality is a particular; universals exist only in the mind.¹²⁵

The most important feature of Stump's Thomistic structural hylomorphism for my purposes is her conception of substantial form. According to Stump, a substantial form is best construed as the "configuration" or "organization" of an object's material constituents:

¹²⁴ Stump, *Aquinas*, p. 35. The books and articles by Stump that I will focus on here include the following: Eleonore Stump, *Aquinas* (New York: Routledge, 2003); Eleonore Stump, "Substances and Artifacts in Aquinas's Metaphysics," in Thomas M. Crisp, Matthew Davidson and David Vander Laan (eds.), *Knowledge and Reality: Essays in Honor of Alvin Plantinga* (Dordrecht: Springer, 2006): pp. 63-80; Eleonore Stump, "Resurrection, Reassembly, and Reconstitution: Aquinas on the Soul," in Bruno Niederbacher and Edmund Runggaldier (eds.), *Die menschliche Seele: Brauchen wir den Dualismus?* (Frankfurt: Ontos Verlag, 2006): pp. 151-171; Eleonore Stump, "Resurrection and the Separated Soul," in Brian Davies and Eleonore Stump (eds.), *The Oxford Handbook of Aquinas* (Oxford: Oxford University Press, 2012), pp. 458-466; Eleonore Stump, "Emergence, Causal Powers, and Aristotelianism in Metaphysics," in Ruth Groff and John Greco (eds.), *Powers and Capacities in Philosophy: The New Aristotelianism* (New York: Routledge, 2012): pp. 48-68.

¹²⁵ *Ibid.*, p. 44.

a substantial form of a material object such as a human being is that in virtue of which the material object is a member of the species to which it belongs. Furthermore, the substantial form is the *configuration* or *organization* of the matter of that object in such a way that it gives that object its species-specific causal powers.¹²⁶

In this passage we also see that, like Jaworski, Stump takes her conception of substantial form to be capable of preserving both its kind-specifying and capacity-grounding roles. These, then, are the basic features of Stump's Thomistic structural hylomorphism:

- (1) Hylomorphism: there is both a material aspect and a formal aspect to every material object.
- (2) Mereological Hylomorphism: the formal aspect of a material object is a part of that object (though it is a part of a different sort).
- (3) Configurationalism: the formal aspect of a material object is a certain configuration of that material object's material constituents.
- (4) Particular Forms: the formal component of a material object, the configuration of its material constituents, is a trope-like particular, not a universal.

Now let us see how Stump's view fares with regard to my three main objections.

First, according to my Posteriority Objection to Neo-Aristotelian structural hylomorphism, the view's commitment to something like the diachronic theory of composition outlined above can be seen to give rise to a certain sort of systematic causal overdetermination. I suggested that the source of the problem is this: for Johnston, Fine, Koslicki and Jaworski, a substantial form is a principle of unity, a relation, or a structure that holds between various material constituents which are themselves independently existing things. A substantial form, in each of their views, is ontologically posterior to its substance's integral parts; it is something built on, added to, or drawn from, already existing material substances, which can fall in and out of the relevant relations or structures over time while remaining what they are.

Stump's conception of substantial form, however, is decidedly different. According to Stump, while it is true that in some cases the formal aspect of a material object is something built

¹²⁶ Stump, "Resurrection, Reassembly", p. 161. See also, Stump, *Aquinas*, pp. 36-37, 65, 194-195, 197; Stump, "Substances and Artifacts", pp. 63-64, 77fn; Stump, "Emergence", pp. 51-52.

on, added to, or drawn from, already existing material substances, this is true only for *artifacts*, for which the formal aspect is some *accidental* form. This is, importantly, *not* a true description of material *substances*, for which the formal aspect is a *substantial* form. As she puts it,

Any ordinary artifact is configured only with an accidental form. The production of an artifact, such as an axe with a metal blade attached to a wooden handle, brings together already existing things – a metal thing and a wooden thing – which in the new composite still remain the things they were before being conjoined. An artifact is thus a composite of things configured together into a whole but not by a substantial form. Since only something configured by a substantial form is a substance, no artifact is a substance.¹²⁷

And so, whereas the complement of an accidental form is either some already existing material substance or some set of already existing material substances, the complement of a substantial form is neither. Instead, a substantial form is paired with “prime matter”, a purely potential substratum that cannot exist on its own.¹²⁸

So, according to Stump, the complement of any substantial form within a material substance is prime matter. And prime matter is in itself entirely unactualized. It is the substantial form that is responsible for configuring that unactualized potential such that there exists some actual substance with various material or “integral” parts that realize its various functions. For this reason, the integral parts of a substance, on Stump’s view, are ontologically posterior to that substance’s substantial form. That is, any integral part of a substance will depend for both its existence and its identity on that substance’s substantial form: *that* the integral part exists, and *what* that integral part is are determined by the substantial form. As Stump explains,

the substantial form of a substance such as a cat does not weave together the integral parts of the cat – the leg and trunk and so on – or any other matter-form composites in the cat. Rather, every material part of the cat is a cat-ish part, which is what it is in virtue of being informed by the substantial form cat.¹²⁹

¹²⁷ Stump, *Aquinas*, p. 39.

¹²⁸ I investigate the nature of prime matter in more detail in Chapters Two and Three, and I investigate the key differences between material substances and material artifacts in more detail in Chapter Four.

¹²⁹ Stump, “Resurrection, Reassembly”, pp. 162-163. See also, Stump, “Resurrection and the Separated Soul”, p. 459.

Stump's Thomistic structuralhylomorphism, then, may not be susceptible to my Posteriority Objection. According to her account, the complement of a substantial form in a material substance is prime matter, and so any integral parts of that substance are a *result* of the actualization of prime matter by that substantial form; none of the material parts of which a composite material substance is composed existed before the composite itself was brought into existence. Thus, Stump's version of structuralhylomorphism rejects any kind of preservationist diachronic theory of composition. Solutions to the Posteriority Objection introduced by alterationist and annihilationist diachronic theories of composition are, then, available to her.¹³⁰

With that said, I have one lingering concern for her view related to this objection. Recall that, according to Stump, the substantial form of any material substance is the configuration or organization of its prime matter – something which is in itself completely unactualized. But can we make sense of the idea of a configuration or organization of something which does not actually exist? Does the very concept of a configuration imply that there is something actual that is configured? To make the case even stronger, consider the case of angels, to whom Stump also intends her account to apply.¹³¹ Can we make sense of the idea of a configuration of immaterial parts (if an angel has parts), or a configuration which is the configuration of nothing else (if angels do not)? Now, I do think that nearly any account of substantial form is going to have trouble explaining how an entirely unactualized substratum takes on form, or how a form can exist without being the form of anything. And so perhaps this is not a problem that is particular to Stump's view. But it is still a problem.¹³²

¹³⁰ I explain in more detail how such a solution to the Posteriority Objection might work in Chapter Four.

¹³¹ See, for example, Stump, *Aquinas*, p. 37.

¹³² I say a bit more about this issue in Chapter Four.

According to my Reducibility Objection to Neo-Aristotelian structuralhylomorphism, conceiving of substantial form as structure opens up the possibility that a material object's substantial form is really just the spatial and causal relations between its material constituents. The worry here is that talk of "holistic structure" might in the end just be a figurative way of referring to a shifting set of lower-level relations between micro-physical parts. I argued above that the only plausible strategies for avoiding this conclusion force the Neo-Aristotelian structuralhylomorphist to abandon the ontological priority of the essential features of a material object over its accidental features, and/or the mereological simplicity of substantial form, and/or their conception of substantial form as structure.

Does Stump's configurationalist conception of substantial form successfully avoid these worries? It is not clear to me that it does. Recall, once again, that, according to Stump, the substantial form of any material object is the configuration or organization of its material constituents. Given what we now know about Stump's account from her response to the Posteriority Objection, strictly speaking, the substantial form of that material object must be understood as the configuration or organization of its prime matter, not any independently existing material substances. But what is a configuration? And how is it related to the spatial and causal relations that hold between a material object's material constituents?

A suggestion often repeated by Stump in her descriptions of substantial form is that "the organization of the matter *includes* causal relations among the material components of the thing as well as such static features as shape and spatial location."¹³³ Here it sounds as if Stump takes the configuration or organization of a material substance to be *composed* of the spatial and causal relations between its material constituents. Perhaps, then, Stump should be read as favoring one of the first two strategies for avoiding the Reducibility Objection that I considered above. But in

¹³³ Stump, *Aquinas*, p. 36. See also, Stump, "Substances and Artifacts", pp. 63-64; Stump, "Emergence", pp. 51-52.

at least one other place, she says that “the shape of a molecule *results* from the configuration of the components of the molecule, from their chemical and physical properties and the biochemical processes by which they causally interact with each other.”¹³⁴ Here it sounds as if Stump takes configuration to *underlie* the more static structural features of material objects such as shape. If this is her view, then perhaps Stump should be read as favoring the third strategy. Either way, I do not see any reason to think that Stump’s conception of substantial form as configuration allows her to avoid the worries that I raised for those strategies earlier on. And so I think that, for Stump, the threat of reducibility remains.

Finally, according to my Fragility Objection to Neo-Aristotelian structural hylomorphism, the Neo-Aristotelian structural hylomorphist conception of substantial form cannot give an account of the persistence of material substances in terms of their substantial forms, and so Neo-Aristotelian structural hylomorphists are forced to either give up that feature of the view (despite the remarks of Johnston, Fine, Koslicki, and Jaworski to the contrary), or supplement the view with some non-structuralist conception of the substantial forms of more dynamic material objects, such as living organisms. I argued that if this persistence-grounding feature cannot be preserved, then Neo-Aristotelian structural hylomorphists take from substantial form one of the principal roles it was meant to play, and, from hylomorphism, one of its main explanatory virtues.

Stump, like Jaworski, takes her conception of substantial form to be capable of preserving its role as the ground and explanation for the continued existence of substances over time. In a passage worth quoting in full, she describes her position on this point:

unlike accidental forms, a substantial form cannot be gained and lost by a thing over time; if a substantial form goes out of existence, the thing configured by that form ceases to exist as well... Any thing is this thing just in virtue of the fact that the form which

¹³⁴ Stump, *Aquinas*, p. 196.

conjoins the parts of it into one whole is this form. For example, a material substance such as Socrates is this human being in virtue of having this substantial form. What is necessary and sufficient for something to be identical to Socrates is that its substantial form be identical to the substantial form of Socrates. So Aquinas accepts this more general principle: ...For any substances *x* and *y*, *x* is identical to *y* if and only if the substantial form of *x* is identical to the substantial form of *y*.¹³⁵

Since, according to Stump, the substantial form of any substance is the configuration of its matter, we may conclude that, on Stump's view, what grounds and explains the persistence of an object through time is the persistence of the very same configuration of its matter.

But consider once again the observations with which I introduced my Fragility Objection above. In the case of my cat, Nico, it seems that, in addition to shuffling through various material constituents over time, he also regularly changes his structural features, all while remaining the same cat. For instance, since we brought him home as a kitten, Nico has become taller and fatter, and he has also lost his tail. Does this mean that the configuration of his matter has changed as well? If his configuration includes the spatial and causal relations that have held between his material constituents, then we would have to admit that it does. And so it appears that the persistence of some particular configuration of his matter is not what grounds or explains the persistence of Nico over time.

Stump's proposed solution to something like my Fragility Objection is to introduce, like Johnston and Jaworski, the notion of a "dynamic configuration" or a "dynamic organization": "A macro-level material thing is matter organized or configured in some way, where the organization or configuration is dynamic rather than static... This dynamic configuration or organization is what Aquinas calls 'form'."¹³⁶ But, once again, we might ask, what is a dynamic configuration? Is it a configuration the matter of which changes over time? Or is it a mereologically complex configuration, the particular sub-configurations of which are accidental?

¹³⁵ *Ibid.*, p. 46. See also, Stump, "Resurrection, Reassembly", pp. 161-162.

¹³⁶ Stump, *Aquinas*, p. 36. See also, Stump, "Substances and Artifacts", pp. 63-64; Stump, "Emergence", pp. 51-52.

If it is the former, then introducing the concept of a “dynamic configuration” does not adequately capture the dynamicity of many material substances, such as living organisms. If it is the latter, then we ought to ask: what makes it the very same configuration through the alterations in its parts? It seems to me that Stump’s response to something like my Fragility Objection is, at the very least, incomplete. Introducing an element of dynamicity into her conception of substantial form is an important step forward. But merely referring to a particular configuration as “dynamic” does not by itself explain how it is that it remains the same throughout various changes in a substance’s structural features. As a result, I think that Stump has not successfully avoided my Fragility Objection. Even her conception of substantial form as configuration is too fragile to ground and explain the persistence of material substances over time. It seems to me, then, that what contemporaryhylomorphists need is not a better version of the structuralist approach to substantial form, but an entirely different approach altogether – one that has the resources to avoid these types of concerns.

CHAPTER 2: AQUINAS'S GENERAL ONTOLOGY

2.1 Moving Pieces and Basic Principles

Though the approach may have its limitations, I think that it is best to think of Thomas Aquinas's general ontology (his ontology of both the corporeal and incorporeal world) in mereological terms, that is, in terms of parts and wholes.¹³⁷ Many of the "moving pieces" in Aquinas's general ontology come together to form composite wholes, and the composite wholes that result from such unions are indebted to those parts for many of their features. Aquinas, then, should be seen as espousing a *constituent* rather than a *relational* ontology.¹³⁸ What this means is that, for Aquinas, the fundamental entities, the substances, derive their characters either from their own constituents or from the composites of which they are themselves constituents, rather than from any external entities to which they are in some other way related, as in a relational ontology. Evidence for this claim can be found in the way in which Aquinas typically describes the basic form-matter composition of material objects. In his *De principiis naturae*, for instance, Aquinas states that "matter and form are said to be intrinsic to a thing, in that they are parts constituting that thing",¹³⁹ and that "matter and form are said to be related to one another...they

¹³⁷ For an excellent example of this sort of approach to understanding Aquinas's ontology, see Jeffrey E. Brower, *Aquinas's Ontology of the Material World: Change, Hylo-morphism, and Material Objects* (Oxford: Oxford University Press, 2014). For much of the present chapter I will be working from and with the reconstruction of Aquinas's ontology of material objects that Brower offers in that book. But there are some key features of Brower's model with which I disagree (both interpretively and philosophically), and so I will also offer an alternative model that diverges from Brower's in some important respects starting in section 2.2.2 below.

¹³⁸ Brower, *Aquinas's Ontology*, p. 130. For more on this distinction, see Nicholas Wolterstorff, "Bergmann's Constituent Ontology, *Noûs*, Vol. 4, No. 2 (May, 1970): pp. 109-134; Nicholas Wolterstorff, "Divine Simplicity", *Philosophical Perspectives*, Vol. 5 (1991): pp. 531-552; Michael J. Loux, "Aristotle's Constituent Ontology", in Dean W. Zimmerman and Karen Bennett (eds.), *Oxford Studies in Metaphysics*, Vol. 2 (Oxford: Oxford University Press, 2006): pp. 207-250; Peter van Inwagen, "Relational vs. Constituent Ontologies", *Philosophical Perspectives*, Vol. 25, No. 1 (Dec., 2011): pp. 389-405; Michael J. Loux, "What is Constituent Ontology?", in Lukas Novak, Daniel D. Novotny, Prokop Soušek, and David Svoboda (eds.), *Metaphysics: Aristotelian, Scholastic, Analytic* (Frankfurt: Ontos Verlag, 2012): pp. 43-57; Eric T. Olson, "Properties as Parts of Ordinary Objects", in John Keller (ed.), *Being, Freedom and Method: Themes from van Inwagen* (Oxford University Press, forthcoming).

¹³⁹ Aquinas, *DPN*, Ch. 3 [*Materia et forma dicuntur intrinsecae rei, eo quod sunt partes constituentes rem*].

are also said to be related to the composite as parts to a whole and as that which is simple to that which is composite.”¹⁴⁰

Such passages also indicate that, for Aquinas, the parts or constituents of a substance include more than just its physical parts. According to Aquinas, my cat, Nico, has various *functional parts*, such as four legs, a tail, a head, and a torso. And there is a sense in which we can speak of Nico as being composed of such parts. Nico also has various *elemental parts*, such as quarks and leptons (or whatever his smallest material parts turn out to be).¹⁴¹ And there is a sense in which we can speak of Nico as being composed of these particular parts as well. In addition to his functional and elemental parts, however, Aquinas would also say that Nico has certain *metaphysical parts*, namely matter and form. And so, on Aquinas’s view, my cat, Nico, and, indeed, every material object, has both physical parts (functional, elemental, etc.) and metaphysical parts.¹⁴² In this way, Aquinas is something of a “compositional pluralist”, in that he holds that material objects have more than one kind of part, and can thus be decomposed in different ways depending on which parts are being considered.¹⁴³

¹⁴⁰ *Ibid.*, Ch. 4 [*Materia enim et forma dicuntur relative ad invicem... Dicuntur enim ad compositum sicut partes ad totum, et simplex ad compositum*]. From these remarks it is also clear that, like Fine and Koslicki, and unlike Johnston, Aquinas espouses a version of mereological hylomorphism.

¹⁴¹ Elements are those material substances that cannot be decomposed into anything smaller than themselves. And so the elemental parts of any material object are its smallest material parts, by definition (see, for example, Aquinas, *DPN*, Ch. 3; Aquinas, *In Met.*, B. 5, L. 4; Aquinas, *In DGC*). Following the Aristotelian physical science of his time, Aquinas believed that the elemental parts of material substances included fire, air, earth, and water. However, quarks and leptons seem to be the most likely candidate now.

¹⁴² See, for example: Eleonore Stump, *Aquinas* (New York: Routledge, 2003): pp. 35, 42; Christopher M. Brown, *Aquinas and the Ship of Theseus* (New York: Continuum, 2005): p. 53, pp. 92-98; Robert Pasnau, *Metaphysical Themes 1274-1671* (Oxford: Oxford University Press, 2011): pp. 7-11.

¹⁴³ Brower, *Aquinas’s Ontology*, p. 10. For more on compositional pluralism, see, for example: Kris McDaniel, “Modal Realism with Overlap”, *Australasian Journal of Philosophy*, Vol. 82, No. 1 (Mar., 2004): pp. 137-152; Kris McDaniel, “Structure-Making”, *Australasian Journal of Philosophy*, Vol. 87, No. 2 (Jun., 2009): pp. 254-255; Kris McDaniel, “Parts and Wholes”, *Philosophy Compass*, Vol. 5, No. 5 (May, 2010): pp. 412-425. Aquinas’s distinction between physical and metaphysical parts also seems very similar to David Armstrong’s distinction between mereological and non-mereological composition (see, for example: D.M. Armstrong, *A World of States of Affairs* (Cambridge: Cambridge University Press, 1997): pp. 37, 117, 122, 126, 187).

Some of the main “moving pieces” in Aquinas’s constituent ontology include the following: prime matter, substantial forms, material substances, accidental forms, accidental unities, artifacts, angels, and God.¹⁴⁴ Prime matter lies at the very bottom of Aquinas’s ontology. Prime matter is said to be “pure potency” or “pure potentiality” in that it has no positive attributes of its own, but it also serves as the ultimate substratum of the corporeal world and one of the principal metaphysical parts of every material object.¹⁴⁵ A substantial form, on the other hand, the nature of which I will consider in more detail in Chapters Three and Four, is said to be a certain “act” or “actuality,” and is the immediate complement of prime matter.¹⁴⁶ When the potentiality of prime matter and the actuality of substantial form come together, they are said to give rise to a composite substance, sometimes referred to as a “subject”.¹⁴⁷ The composite of prime matter and substantial form is often referred to as a subject due to the fact that it itself is said to underlie various accidental forms. An accidental form, which is any attribute falling under one of the last nine of Aristotle’s ten categories, such as quantity, quality, time at which, place, etc.,¹⁴⁸ is then paired with that substantial form and prime matter to compose an “accidental

¹⁴⁴ This is essentially the same list that Brower gives in Chapter 1 of his *Aquinas’s Ontology*. Noteworthy omissions here include the various physical parts of substances just mentioned and what is sometimes referred to as a substance’s “existence” or “act of existence”. I will say more about the ontological status of these entities in section 2.2.1 below.

¹⁴⁵ For descriptions of prime matter as “pure potency”, see, for example: Aquinas, *SCG*, I, Ch. 17, N. 7; Aquinas, *ST*, I, Q. 115, A. 1, Ad. 2. For more on prime matter in general see, for example: Aquinas, *DPN*, Ch. 2. For an excellent analysis of various passages in Aquinas’s texts on prime matter, as well as a survey of the scholarly literature on this topic, see John F. Wippel, *The Metaphysical Thought of Thomas Aquinas* (Washington, D.C.: Catholic University of America Press, 2000): pp. 312-327.

¹⁴⁶ For a description of substantial form as the “act” or “actuality” of matter, see, for example: Aquinas, *DPN*, Ch. 1; Aquinas, *In DA*, B. 2, L. 1, 215, 222, 223, 229, 234; Aquinas, *ST*, I, Q. 75, A. 1, Co.; Aquinas, *ST*, I, Q. 75, A. 5, Co.; Aquinas, *ST*, I, Q. 75, A. 6, Co.; Aquinas, *ST*, I, Q. 76, A. 1, Co.; Aquinas, *ST*, I, Q. 76, A. 7, Co.; Aquinas, *ST*, I, Q. 76, A. 8, Co.; Aquinas, *ST*, I, Q. 77, A. 1, Co.; Aquinas, *In Met.*, B. 7, L. 2, 1278. For a description of substantial form as the immediate complement of prime matter, see, for example: Aquinas, *QDA*, Q. 1, A. 9, Co.; Aquinas, *QDA*, Q. 1, A. 9, Ad. 17; Aquinas, *SCG*, II, C. 71, N. 2; Aquinas, *In DGC*, L. 10; Aquinas, *ST*, I, 76, 6, Co. Aquinas’s account of substantial form will be the principal topic of discussion in Chapter Three below.

¹⁴⁷ See, for example, Aquinas, *DPN*, Ch. 1.

¹⁴⁸ For the complete list, see Aristotle, J. L. Akrill (trans.), *Categories*, in Jonathan Barnes (ed.), *The Complete Works of Aristotle*, Vol. 1 (Princeton, NJ: Princeton University Press, 1984): pp. 3-24). I discuss the nine categories of accidents in Aristotle and Aquinas in more detail in section 3.7 below.

being” or an “accidental unity”.¹⁴⁹ In some cases, when one or more material substances, which are themselves composites of form and matter, are paired with a certain accidental form, they together compose an artifact.¹⁵⁰ So, for example, when a sculptor fashions a work of art from bronze, the material substance, bronze, together with a certain accidental form, the shape that the sculptor gives it, come to compose a statue, a certain type of artifact. An angel, on the other hand, according to Aquinas, is an immaterial substance, that is, it has no matter whatsoever. And so an angel is, in some sense, “pure form”.¹⁵¹ And while God is not, strictly speaking, identical to, or composed of, any forms, He is analogous to a substantial form in that He is “pure act” or “pure actuality” and is in no way comprised of matter or any sort of potentiality.¹⁵²

It is important to keep in mind that the various composition relations just outlined are not to be construed as instances of the identity relation (with the exception, perhaps, of God¹⁵³). Aquinas rejects the thesis that composition is identity.¹⁵⁴ According to him, for a material substance to be composed of a substantial form and prime matter is not for that material substance to be identical to either or both of them, even if those are all of the metaphysical parts

¹⁴⁹ As Aquinas explains in Chapter 6 of his *DEE*, “just as a substantial being results from form and matter when they are composed, so too an accidental being results from accident and subject when the accident comes to the subject” [*sicut ex forma et materia relinquitur esse substantiale, quando componuntur, ita ex accidente et subiecto relinquitur esse accidentale, quando accidens subiecto advenit*]. For a complete list of references in Aquinas’s texts to “accidental beings” or “accidental unities”, see Brown, *Aquinas and the Ship of Theseus*, p. 64, fn27.

¹⁵⁰ As Aquinas explains in Chapter 1 of his *DPN*, the forms that introduce artifacts into existence are always accidental forms.

¹⁵¹ For descriptions of angels as “mere forms”, “self-subsistent forms”, or “simple forms”, respectively, see Aquinas, *QDSC*, Q. 1, A. 5, Ad 10; Aquinas, *QDSC*, Q. 1, A. 8, Ad 13; Aquinas, *ST*, I, Q. 54, A. 3, Ad. 2. I discuss the composition of angels in more detail in section 2.4.1 below.

¹⁵² For a description of God as “pure act”, see, for example: Aquinas, *QDV*, Q. 8, A. 6, Co.; Aquinas, *ST*, Q. 3, A. 2, Co.; Aquinas, *ST*, Q. 115, A. 1, Ad. 2; Aquinas, *SCG*, I, Ch. 17, N. 7.

¹⁵³ According to Aquinas, God is perfectly simple in that He is identical to His essence, His existence, and each of His attributes (see, for example: Aquinas, *ST*, I, Q. 3). For more on Aquinas’s views regarding divine simplicity, see, for example: Stump, *Aquinas*, pp. 92-130.

¹⁵⁴ For other accounts of material objects that reject the composition as identity thesis, see, for example: Peter van Inwagen, “Composition as Identity”, *Philosophical Perspectives*, Vol. 8 (1994): pp. 207-220; Trenton Merricks, *Objects and Persons* (Oxford: Oxford University Press, 2001): pp. 20-28; Kris McDaniel, “Against Composition as Identity”, *Analysis*, Vol. 68, No. 2 (Apr., 2008): pp. 128-133. See, also, the essays in: Aaron J. Cotnoir and Donald L. M. Baxter (eds.), *Composition as Identity* (Oxford: Oxford University Press, 2014).

that it can be said to have.¹⁵⁵ Concerning human beings, for instance, Aquinas says that “a human being is said to be composed of soul and body, as a certain *third thing* constituted out of two things, which is neither of them. For a human being is neither soul nor body.”¹⁵⁶ And, in his *Commentary on Aristotle’s Metaphysics*, Aquinas summarizes “The Philosopher” on this point, approvingly:

when there is something that is composed of something else as a whole, that is, a whole that is one thing, and not like a heap of stones, but like a syllable, which is one thing absolutely, in all such cases the composite cannot be identified with those things of which it is composed, just as a syllable is not its letters. For in the same way that this syllable, ‘ba’, is not the same as these two letters, ‘b’ and ‘a’, neither is flesh the same as the fire and earth of which it is composed.¹⁵⁷

And so, for Aquinas, any composite whole should be seen as something “over and above” even its metaphysical parts.¹⁵⁸

One other principal feature of Aquinas’s general ontology worth noting here is his consistent rejection of any view that posits the existence of universals existing outside of the mind. According to Aquinas, both substantial forms and accidental forms (those entities responsible for a substance’s kind-membership and its various non-essential attributes) are individuals. In other words, they are *not* numerically identical across instances. As Aquinas explains in his commentary on Aristotle’s *Posterior Analytics*:

although, according to the consideration of the intellect, [a universal] is one over and above the many, nevertheless, according to the existence that it has in all of the particulars it is one and the same, not numerically the same, as if the humanity of all men were numerically the same, but according to the notion of the species. For just as this

¹⁵⁵ Whether prime matter and substantial form are in fact all of the metaphysical parts that a material substance can be said to have is one of the principal disagreements between the two main models of Aquinas’s general ontology that I will consider in section 2.2 below.

¹⁵⁶ Aquinas, *DEE*, Ch. 2, emphasis added [*Ex anima enim et corpore dicitur esse homo, sicut ex duabus rebus quaedam res tertia constituta, quae neutra illarum est. Homo enim neque est anima neque corpus*].

¹⁵⁷ Aquinas, *In Met.*, B. 7, L. 17, 1674 [*quia aliquid est sic ex aliquo compositum ut omne, idest totum sit unum, et non hoc modo sicut cumulus lapidum, sed sicut syllaba, quae est unum simpliciter; in omnibus talibus oportet, quod ipsum compositum non sit ea ex quibus componitur: sicut syllaba non est elementa. Sicut haec syllaba, quae est ba, non est idem quod hae duae literae b et a; nec caro est idem quod ignis et terra*].

¹⁵⁸ Stump makes the same point in her *Aquinas*, pp. 50-51, as does Brower in his *Aquinas’s Ontology*, p. 62.

instance of white is similar to that instance of white in whiteness, not as if there were numerically one whiteness existing in both, so too Socrates is similar to Plato in humanity, but not as if there were numerically one humanity existing in both.¹⁵⁹

With regard to substantial forms, those metaphysical parts of substances that give a thing its species, he says, further,

it is impossible for that through which things are placed in their species to be numerically one in individuals of the same species. For if two horses were to agree in number with respect to that through which they have their species, it would follow that two horses are actually one horse, which is impossible.¹⁶⁰

And in his *De ente et essentia*, Aquinas even explicitly uses the term ‘universal’ to characterize what it is that he is denying:

...no commonness is found in Socrates, rather, whatever is in him is individuated. Similarly, it also cannot be said that the notion of genus or species applies to human nature according to the existence that it has in individuals, because human nature is not found in individuals according to its unity, as one thing belonging to all, which the notion of a universal requires.¹⁶¹

Based on these passages, I think we should read Aquinas as rejecting both Platonic and Immanent versions of Realism concerning properties (as those views are currently understood).¹⁶² Now, precisely which theory of properties or attributes Aquinas’s rejection of universals outside of the mind commits him to is a matter of some debate,¹⁶³ and it is not one that

¹⁵⁹ Aquinas, *In PA*, B. 2, L. 20 [*Quod etsi secundum considerationem intellectus sit unum praeter multa, tamen secundum esse est in omnibus singularibus unum et idem, non quidem numero, quasi sit eadem humanitas numero omnium hominum, sed secundum rationem speciei. Sicut enim hoc album est simile illi albo in albedine, non quasi una numero albedine existente in utroque, ita etiam Socrates est similis Platoni in humanitate, non quasi una humanitate numero in utroque existente*] ex hoc igitur experimento, et ex tali universali per experimentum accepto].

¹⁶⁰ Aquinas, *QDSC*, Q. 1, A. 9, Co [*impossibile est esse unum numero in individujs eiusdem speciei illud per quod speciem sortiuntur. Si enim duo equi convenirent in eodem secundum numerum quo speciem equi haberent, sequeretur quod duo equi essent unus equus; quod est impossibile*].

¹⁶¹ Aquinas, *DEE*, Ch. 3 [*in Socrate non invenitur communitas aliqua, sed quicquid est in eo est individuat. Similiter etiam non potest dici quod ratio generis vel speciei accidat naturae humanae secundum esse quod habet in individujs, quia non invenitur in individujs natura humana secundum unitatem, ut sit unum quid omnibus conveniens, quod ratio universalis exigit*].

¹⁶² Jeffrey E. Brower and Susan Brower-Toland reach the same conclusion, based on similar passages, in their “Aquinas on Mental Representation: Concepts and Intentionality”, *The Philosophical Review*, Vol. 117, No. 2 (Apr., 2008): pp. 210-211

¹⁶³ For an interpretation of Aquinas according to which he is a trope-nominalist, see Brian Leftow, “Aquinas on Attributes”, *Medieval Philosophy and Theology*, Vol. 11, No. 1 (Mar., 2003): pp. 1-41. For an interpretation of

I will enter into here. But the passages above should be enough to demonstrate at least that in Aquinas's general ontology all forms should be understood as particulars rather than universals.

2.2. Two Competing Models

So far what I have given is a typical, mostly uncontroversial, summary and description of some of the basic principles and moving pieces that serve as the foundation of Aquinas's general ontology. On my interpretation, Aquinas espouses a constituent ontology that also features a commitment to compositional pluralism, a rejection of the thesis that composition is identity, as well as a denial of the existence of universals of any sort outside of the mind. That ontology includes, in its list of moving pieces, at least all of the following: prime matter, substantial forms, material substances, accidental forms, accidental unities, artifacts, angels, and God. In what follows, I will now consider two competing models for how to reconstruct Aquinas's complete ontology using, for the most part, just these basic principles and moving pieces: the model proposed by Jeffrey Brower in his most recent book, and an alternative model that I will assemble from various other interpretations of Aquinas, including my own.

2.2.1 Brower's Model of Aquinas's General Ontology

Brower's model of Aquinas's general ontology is built on a distinction between two sorts of composite wholes: material substances and accidental unities. The difference between these two sorts of composite wholes, according to Brower, is as follows:

Aquinas thinks that the corporeal world is completely analyzable in terms of two different types ofhylomorphic compound – what he calls *material substances* and *accidental unities*, respectively. These two types of compound are distinguished both by their matter and by their form – that is to say, both by the type of being that serves as their substratum and by the type that inheres in their matter... Aquinas thinks of all

Aquinas according to which his view of common natures is a sort of "via media" between immanent realism and trope-nominalism, see Jeffrey E. Brower, "Aquinas on the Problem of Universals", *Philosophy and Phenomological Research*, Vol. 92, No. 3 (May, 2016): pp. 715-735. For other interpretations of Aquinas concerning properties or attributes, see the citations listed in the Leftow article.

material substances as composed of *prime matter* and *substantial form*, whereas he thinks of all accidental unities as composed of *substances* and *accidental forms*.¹⁶⁴

This, then, is the most basic structure of Aquinas's ontology of the material world, according to Brower: prime matter and substantial forms together compose material substances, and material substances and accidental forms together compose accidental unities.¹⁶⁵ Material substances include things such as elements, minerals, plants, animals and human beings.¹⁶⁶ Accidental unities include artifacts, such as bronze statues, and so-called "kooky objects", such as white-Socrates and seated-Socrates.¹⁶⁷ This basic structure is then expanded to include immaterial substances, such as angels and God, who are, in some sense, identical to their substantial forms,

¹⁶⁴ Brower, *Aquinas's Ontology*, p. 9.

¹⁶⁵ A few words about Brower's terminology are in order here. According to Brower, the relation that is said to hold between a form and its "subject" is one of "inherence", and the relation that is said to hold between the metaphysical parts of a material substance or accidental unity and the "hylomorphic compound" that they compose is one of "composition". Importantly, these "relations" are not to be construed as further additions to Aquinas's ontology. They are "built into the nature" of the entities being related (see, for example, *Ibid.*, pp. 8-9).

¹⁶⁶ *Ibid.*, p. 206.

¹⁶⁷ *Ibid.*, pp. 11-12. The phrase 'kooky objects' comes from Gareth Matthews, "Accidental Unities", in Malcolm Schofield and Martha Craven Nussbaum (eds.), *Language and Logos: Studies in Ancient Greek Philosophy* (Cambridge: Cambridge University Press, 1982): pp. 223-240. For other accounts of accidental unities as composed of composite substances and accidental forms, see, for example: Frank Lewis, "Accidental Sameness in Aristotle", *Philosophical Studies*, Vol. 42, No. 1 (Jul., 1982): pp. 1-36; S. Marc Cohen, "Kooky Objects Revisited: Aristotle's Ontology", *Metaphilosophy*, Vol. 39, No. 1 (Jan., 2008): pp. 3-19; S. Marc Cohen, "Accidental Beings in Aristotle's Ontology", in Georgios Anagnostopoulos and Fred D. Miller, Jr. (eds.), *Reason and Analysis in Ancient Greek Philosophy* (Dordrecht: Springer, 2013): pp. 231-242; Loux, "Aristotle's Constituent Ontology"; Michael J. Loux, "Aristotle's Hylomorphism", in Novak, Lukas and Daniel D. Novotny (eds.), *Neo-Aristotelian Perspectives in Metaphysics* (New York: Routledge, 2014): pp. 138-163; Brown, *Aquinas and the Ship of Theseus*, pp. 53, 64; David S. Oderberg, *Real Essentialism* (New York: Routledge, 2007): pp. 167-170; Robert Pasnau, "Form and Matter", in Robert Pasnau (ed.), *The Cambridge History of Medieval Philosophy* (Cambridge: Cambridge University Press, 2010): p. 642; Pasnau, *Metaphysical Themes*, pp. 101-102; Robert Pasnau, "Mind and Hylomorphism", in John Marenbon (ed.), *The Oxford Handbook of Medieval Philosophy* (Oxford: Oxford University Press, 2012): p. 501. The Matthews, Lewis, Cohen, and Loux articles concern Aristotle's views; the Brown, Oderberg and Pasnau selections concern Aquinas's. For contrary interpretations of Aristotle on accidental unities, see: Theodore Scaltsas, *Substances and Universals in Aristotle's Metaphysics* (Ithaca, NY: Cornell University Press, 1994): pp. 97-113, 150-154; Christopher Shields, *Order in Multiplicity: Homonymy in the Philosophy of Aristotle* (Oxford: Clarendon Press, 1999): pp. 155-175. For a contrary interpretation of Aquinas on accidental unities, see the alternative model outlined below.

and immaterial accidental unities, which are composed of angels and accidental forms.

Importantly, God is not a part of any accidental unity, either material or immaterial.¹⁶⁸

According to Brower, these categories, taken together, form an exhaustive list of all of the types of composite entities that exist in Aquinas's ontology, and all of the types of parts that they can be said to have.¹⁶⁹ Perhaps the most controversial aspect of Brower's model is not what *is* included, but what is *not*. First, Brower's model does not include the "existence" of any thing (its "*esse*" or "*actus essendi*", sometimes referred to as a thing's "act of existence").¹⁷⁰ Aquinas himself often contrasts the existence of a thing with its essence: the essence of a thing is the "what-it-is" of the thing, and the existence is the "that-it-is".¹⁷¹ Aquinas's distinction here is meant to capture the idea that, with the exception of God, no description or understanding of what a thing is entails the existence of that thing; something more must be "added" to the essence of that thing to produce an actually existing thing. Now, in the context of these sorts of discussions, Aquinas often speaks of all other things besides God as being "composed" of both their essence and their existence.¹⁷² However, Brower does not think that such remarks commit Aquinas to the claim that the existence of a thing is a further addition to his ontology. As Brower explains,

As I see it, the whole point of Aquinas's distinction between essence and existence in creatures is to emphasize their contingency or lack of aseity. Likewise, I think his talk of creatures being 'composed' of essence and existence is a figurative way of expressing this same point, and hence not to be taken literally.¹⁷³

Brower is aware of the textual and interpretive complications that arise due to his omission of acts of existence from Aquinas's complete ontology. Ultimately, however, Brower thinks that he

¹⁶⁸ *Ibid.*, pp. 12-14.

¹⁶⁹ *Ibid.*, p. 14.

¹⁷⁰ *Ibid.*, p. 17.

¹⁷¹ See, for example, Aquinas, *DEE*, ch. 4; Aquinas, *QDSC*, A. 1, Co.

¹⁷² See citations in the previous footnote. For an excellent analysis of the essence-existence composition of created beings in Aquinas, see Wippel, *Metaphysical Thought*, pp. 132-176.

¹⁷³ Brower, *Aquinas's Ontology*, p. 196fn.

simply does not need to include them, and that Aquinas never meant for them to be included in his fundamental ontology.

Second, Brower's model of Aquinas's complete ontology does not include any of the integral or quantitative parts that material substances are said to have. The integral parts of a material substance are its spatial or functional parts. Examples of integral parts include one's head, hands, eyes, blood, flesh and bones. Though Aquinas often speaks of material substances, such as human beings, as having such parts,¹⁷⁴ according to Brower, heads, hands, eyes, blood, flesh, bones, and the like, are not to be included in Aquinas's fundamental ontology. As he puts it,

As I see it, therefore, integral parts are best explained, for Aquinas, in terms of arrangements of portions or subportions of prime matter—where the precise nature of their arrangement is itself determined by the type of form (or compound) with which the prime matter in question is associated. Thus, if a portion of prime matter is combined with one type of substantial form (say, to compose a human being), its subportions will be arranged in one way (say, head-wise and hand-wise, flesh-wise and bone-wise). But if this same portion of prime matter is combined with another type of substantial form (say, to compose a lump of bronze), its subportions will be arranged in another way (say, lump-wise). I think this is why Aquinas insists that, unlike hylomorphic parts, integral or quantitative parts must be conceived of as logically posterior to the wholes of which they are the proper parts. Indeed, I think it is precisely for this reason that Aquinas also speaks of integral or quantitative parts as existing merely potentially in the wholes of which they are the parts... when he describes integral or quantitative parts as beings in potentiality, I think this must be understood as indicating that they are wholly derivative beings, and hence not to be included in his fundamental ontology.¹⁷⁵

Finally, while Brower's model of Aquinas's complete ontology does include various sorts of artifacts under the category of accidental unity, Brower stipulates that the only sorts of artifacts that Aquinas is ontologically committed to are what we might call single-substance artifacts – artifacts composed of only a single material substance and a single accidental form. Now, throughout Aquinas's works we do find references to numerous examples of what appear

¹⁷⁴ See, for example, Aquinas, *ST*, I, Q. 75, A. 2, Ad. 2; Aquinas, *ST*, I, Q. 76, A. 5, Ad. 3; Aquinas, *ST*, I, Q. 76, A. 8, Co.

¹⁷⁵ Brower, *Aquinas's Ontology*, pp. 16-17.

to be multi-substance artifacts – artifacts composed of two or more material substances and an accidental form that unifies them in some way.¹⁷⁶ Aquinas often uses these sorts of examples to compare and contrast the way in which an accidental form unifies its subject or subjects and the way in which a substantial form unifies its own. But despite their frequent appearance in Aquinas’s texts, Brower does not think that there is any room in Aquinas’s ontology for such multi-substance artifacts:

It is sometimes suggested that that are grounds, in Aquinas’s texts, for distinguishing two different types of non-substantial artifacts (or better, artificial things), depending on the number of substances they involve. Thus, insofar as Aquinas takes statues to be artifacts whose matter involves a single substance, they are sometimes referred to as simple (or one-piece) artifacts. By contrast, insofar as Aquinas takes axes and houses to be artifacts whose matter involves multiple substances, they are sometimes referred to as complex (or multi-piece) artifacts. Although such a distinction may be useful for certain purposes, I do not think it can literally be understood as providing a division within the class of material unities (as if we could merely add some further subdivisions to the diagram at Fig. 9.2 above). For if what I have said about accidental forms above is correct, the only types of material unity that Aquinas admits are those involving quantities, qualities, and motions. But since quantities, qualities, and motions are all monadic (or one-place) forms or properties—that is to say, forms or properties that inhere in a single substance—it follows that the only types of material unity that he admits into his fundamental ontology are simple (or one-piece) unities. Strictly speaking, therefore, axes and houses—and even more complex artifacts, such as the Ship of Theseus—should not be conceived of as distinct types of material unity for Aquinas. On the contrary, they should be conceived of as pluralities of simple material unities that have been ordered or bonded in some way.¹⁷⁷

In summary, then, Brower’s model of Aquinas’s complete ontology includes prime matter, substantial forms, material substances, immaterial substances, material accidental unities and immaterial accidental unities, but does not include acts of existence, integral parts, or multi-substance artifacts.

¹⁷⁶ For instance, Aquinas often speaks of houses, ships, axes, and collections of people, the parts of which presumably include more than one substance.

¹⁷⁷ Brower, *Aquinas’s Ontology*, pp. 215-216. Brower’s rejection of multi-substance artifacts here is, in part, based on the claim that there are no polyadic relations (relations that can be said to hold “between” two things) of any sort in Aquinas’s ontology. For more on this, see: Jeffrey E. Brower, “Medieval Theories of Relations”, in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, Spring 2014 Edition, available at: <http://plato.stanford.edu/archives/spr2014/entries/relations-medieval/>; Jeffrey E. Brower, “Aristotelian vs. Contemporary Perspectives on Relations” in Anna Marmodoro and David Yates (eds.), *The Metaphysics of Relations* (Oxford: Oxford University Press, 2016): pp. 36-54.

In addition to enumerating the various moving pieces that he takes to be fundamental in Aquinas's general ontology, and outlining the various ways in which these moving pieces come together to form others, Brower also gives a more detailed account of the nature of the pieces themselves. Although, for most of the book, Brower follows Aquinas in defining prime matter, substantial form, and accidental form functionally, that is, in terms of the various roles that they play in Aquinas's ontology, Brower also briefly ventures beyond those functional definitions to explore, in more depth, the nature of the entities that play those roles. For instance, Brower argues that Aquinas's prime matter is best understood, in contemporary terms, as a kind of "gunky stuff".¹⁷⁸ According to Brower, Aquinas's prime matter is "gunky" in that it is infinitely divisible, and it is a kind of "stuff" in that it is non-particulate and non-individual. Substantial forms and accidental forms, in contrast, are both simple (i.e., part-less),¹⁷⁹ and individual (i.e. not numerically identical across instances).¹⁸⁰ On Brower's view, both accidental forms and substantial forms (with the exception of the substantial forms of human persons and angels¹⁸¹) are best understood as particularized properties - "tropes" in contemporary terms.¹⁸² The difference between accidental and substantial forms, according to Brower, then, is not so much in their intrinsic nature, but in their "location", that is, in their relation to material substances. As Brower explains,

¹⁷⁸ *Ibid.*, pp. 33-35, 113-129.

¹⁷⁹ *Ibid.*, p. 131. I say more about the simplicity of substantial form in Chapter Three below.

¹⁸⁰ *Ibid.*, p. 22.

¹⁸¹ *Ibid.*, pp. 251, 258.

¹⁸² For other accounts of substantial form according to which the substantial form of a composite substance is a property or set of properties, see, for example: Eleonore Stump and Norman Kretzmann, "Being and Goodness", in Thomas V. Morris (ed.), *Divine and Human Action: Essays in the Metaphysics of Theism* (Ithaca, NY: Cornell University Press, 1988): p. 285; Richard Cross, *The Physics of Duns Scotus* (Oxford: Clarendon, 1998): p. 12; Michael C. Rea, *Metaphysics: The Basics* (New York: Routledge, 2014): pp. 136, 138. For arguments to the effect that a substantial form cannot be a property or set of properties, see, for example: Robert Pasnau, *Metaphysical Themes*, pp. 551-552; David S. Oderberg, "Essence and Properties", *Erkenntnis*, Vol. 75, No. 1 (Jul., 2011): pp. 85-111.

the distinction between substantial and accidental forms is one that should be understood as relative to substances. That is to say, it is a distinction having to do with the different ways in which these two types of forms or properties are possessed by them. Thus, accidental forms are possessed by substances via inherence (since they are properties inhering directly in substances), whereas substantial forms are possessed by substances via constituency (since they are properties inhering directly in their prime matter).¹⁸³

As my parenthetical remark above indicates, Brower does make an exception for the substantial forms of human persons and angels. He does not think that, for Aquinas, the rational soul of a human being or an angel is a particularized property. However, for all other material substances, substantial forms are to be understood as no more than certain types of properties, which, nonetheless, by virtue of their location in the substances themselves, serve as one of their principal metaphysical parts.

One consequence of the basic structure of Brower's model is that whenever some material substance has some accidental form inhering in it, there are actually (at least) two coinciding, but non-identical, hylomorphic compounds present: an accidental unity and its "parent" substance. In such cases, Brower stipulates that the two (or more) hylomorphic compounds are numerically the same (since they share the same matter), but not numerically identical (since they neither share all of the same metaphysical parts, nor the same persistence conditions). Thus, according to Brower's interpretation, Aquinas's ontology of material objects features a relationship of *Numerical Sameness Without Identity* between members of its two kinds of composite wholes.¹⁸⁴

This last feature of Brower's account also gives rise to a detailed and sophisticated analysis of property-possession. According to Brower, the intimate relationship that accidental unities have to their parent substances introduces two distinct ways in which an accidental form can be possessed by a hylomorphic compound. First, a hylomorphic compound can have an

¹⁸³ *Ibid.*, pp. 111-112.

¹⁸⁴ *Ibid.*, pp. 93-94.

accidental form as one of its parts; accidental unities possess accidental forms in this way.

Second, a hylomorphic compound can have an accidental form inhering in it; substances possess accidental forms in this way. Both of these ways of possessing an accidental form are legitimate modes of property possession. However, according to Brower, possession via constituency is the “primary” mode of possession. And so, despite the fact that both substances and accidental unities can be said to possess accidental forms, it is the accidental unity that is the primary possessor of that property. As Brower puts it,

subjects are characterized, primarily or in the first instance, by the forms (or properties) that they possess as proper parts or constituents—or better, as immediate proper parts or constituents... In addition to such primary property characterization, however, the doctrine of numerical sameness without identity enables us to say that subjects are also characterized in a secondary or derivative sense by the constituent properties of things with which they are numerically the same but not identical. The intuitive idea here is that numerical sameness is such an intimate relation that, by virtue of coming to bear it to something else, a compound can take on or inherit certain characteristics of that other thing. Thus, even if it is true that only statues or spheres can be characterized by statuehood or sphericity primarily or simpliciter, since only they possess the relevant properties as immediate proper parts or constituents, nonetheless when a lump of bronze comes to share the same matter as a statue or sphere (which it can do merely by having statuehood or sphericity come to inhere in it), it will thereby come to be characterized by the relevant property derivatively.¹⁸⁵

Brower’s account of the two-fold possession of accidental forms by material substances and accidental unities will become important later on when I consider some worrisome implications of the model as a whole, but before moving on, I would like to consider one of the ways in which Brower uses his model to address an issue for Aquinas’s account of human persons.

At the very end of his book, Brower uses his model of Aquinas’s ontology of material objects to offer an interpretation of Aquinas’s account of the post-mortem persistence of human persons. The basic problem for interpreting Aquinas is as follows:¹⁸⁶ Aquinas says that a human person is essentially a material substance. He also says that at death a substantial change occurs

¹⁸⁵ *Ibid.*, pp. 94-95.

¹⁸⁶ For a nice summary of the problem and a list of the relevant texts, see *Ibid.*, pp. 281-287.

such that the material substance that is composed of a substantial form and prime matter ceases to be. However, the human person's substantial form, her rational soul, survives that person's death and continues on in a disembodied state. Still, a human person is not identical to her soul. So at death it would seem that a human person ceases to be. But Aquinas also has theological reasons for believing that human persons do survive their deaths in some sort of disembodied state.¹⁸⁷ It does not seem that Aquinas's ontology of the material world can account for this. In fact, given the previous points, the post-mortem persistence of human persons seems straightforwardly impossible.

Brower's solution to this puzzle is to offer a non-standard interpretation of what Aquinas means when he says that a human person is, *qua* material substance, "essentially composed" of both a substantial form and prime matter. According to Brower, by "essentially composed" Aquinas does not mean "necessarily composed" such that at any time in which the composite exists it includes both parts. Rather, a material substance is essentially composed of both a substantial form and prime matter when it is "non-contingently disposed" to be composed of both of these parts - in other words, when it is impossible for the substance to persist indefinitely while lacking one or the other.¹⁸⁸ Brower reads Aquinas as saying that a human person, while essentially composed of both a substantial form and prime matter, can also survive the loss of her matter as long as this loss is not permanent. In her disembodied state, the human person comes to

¹⁸⁷ Some of these reasons pertain to post-mortem reward and punishment. Others pertain to specific passages from the Bible, such as the story of Lazarus and the rich man. For more on the former, see, for example: Eleonore Stump, "Resurrection, Reassembly, and Reconstitution: Aquinas on the Soul", in Bruno Niederberger and Edmund Runggaldier (eds.), *Die menschliche Seele: Brauchen wir den Dualismus? The Human Soul: Do We Need Dualism?* (Frankfurt: Ontos Verlag, 2006): pp. 157-159; Patrick Toner, "St. Thomas Aquinas on Punishing Souls", *International Journal for Philosophy of Religion*, Vol. 71, No. 2 (Apr., 2012): pp. 103-116. For more on the latter, see, for example: Christina Van Dyke, "I See Dead People: Disembodied Souls and Aquinas's Two-Person Problem", in Robert Pasnau (ed.), *Oxford Studies in Medieval Philosophy*, Vol. 2 (2015): pp. 25-45. Both of these issues are discussed by Brower in Chapter Thirteen of his *Aquinas's Ontology*.

¹⁸⁸ Brower, *Aquinas's Ontology*, p. 299.

be composed solely of her substantial form (that is, her rational soul), awaiting the eventual return of her body.¹⁸⁹

Putting all of these points together, we can summarize the relevant features of Brower's model of Aquinas's general ontology that I have described thus far as follows:¹⁹⁰

- (1) A material substance is essentially (and exhaustively) composed of both prime matter and a substantial form.
- (2) A material accidental unity is essentially composed of both a material substance and an accidental form.
- (3) An immaterial substance is, in some sense, identical to its substantial form.
- (4) An immaterial accidental unity is composed of both an immaterial substance (an angel) and an accidental form.
- (5) Acts of existence, integral parts, and multi-substance artifacts are not to be included in Aquinas's fundamental ontology.
- (6) Prime matter is best understood as a kind of "gunky stuff".
- (7) Accidental forms and substantial forms (excluding the substantial forms of human persons and angels) are best understood as certain sorts of particularized properties, and are distinguished from one another by their differing relations to substances.
- (8) The relationship between an accidental unity and its parent substance is one of Numerical Sameness Without Identity.
- (9) Accidental forms are possessed primarily by accidental unities and only derivatively by their parent substances.

¹⁸⁹ *Ibid.*, p. 309.

¹⁹⁰ One aspect of Brower's model of Aquinas's general ontology that I have omitted here is his detailed analysis of change. One might think that this is a rather significant omission, since Brower appears to build Aquinas's ontology *from* his account of change. Indeed, Brower himself explains that "just as his realism about hylomorphic compounds (including his commitment to postulating distinct compounds to serve as the termini for every change) is an immediate consequence of his general account of change, so too his realism about accidental unities (including his commitment to postulating distinct accidental unities to serve as the termini for every accidental change) is an immediate consequence of his specific account of change" (*Ibid.*, p. 82). However, it is not clear to me that Aquinas's account of change necessitates a commitment to Brower's model. I think that the alternative model outlined below can accommodate it just as well, though I do not have the space to consider these issues here.

(10) A human person, while essentially composed of both a substantial form and prime matter, at death comes to be temporarily composed solely of her substantial form (her rational soul).

2.2.2 An Alternative Model of Aquinas's General Ontology

The alternative model of Aquinas's general ontology that I would like to consider here is built on a distinction between two sorts of metaphysical parts that individual substances can be said to have: essential parts and accidental parts. Essential parts are those metaphysical parts of an individual substance that comprise its essence or nature. The essential parts of a material substance include its prime matter and substantial form. Typically when a substance loses one or more of its essential parts that substance ceases to exist.¹⁹¹ Accidental parts, on the other hand, are those metaphysical parts of an individual substance that lie outside of its essence. The accidental parts of a substance include all of its accidental forms. Individual substances can, and frequently do, lose and gain such parts over time. As is clear from these first few remarks, according to the alternative model of Aquinas's general ontology, an individual substance's prime matter and substantial form do not exhaust its metaphysical parts. Rather, any individual substance, or "*suppositum*"¹⁹², will, at any time that it exists, be composed of its substantial form, its prime matter, *and* all of the accidental forms that it possesses at that time.¹⁹³

This, then, is the most basic structure of Aquinas's ontology of the material world, according to the alternative model: prime matter and substantial forms together compose the essences or natures of material substances, and the essences or natures of material substances,

¹⁹¹ Though, as we have just seen, on some interpretations of Aquinas's account of the afterlife, human persons can and do survive the loss of their prime matter.

¹⁹² The term 'suppositum' or 'supposit' is one that Aquinas himself uses to refer to individual substances. The reader may notice that in some of the passages featured below Aquinas also frequently uses the term 'hypostasis' to refer to such entities. While the terms 'individual substance', 'suppositum' and 'hypostasis' have slightly different meanings for Aquinas (see Aquinas, *ST*, I, Q. 29, A. 2, Co. for more on this), I do not think that these differences will be relevant for my purposes here, and so I will proceed to use these three terms interchangeably.

¹⁹³ In section 2.4.1 below I will introduce some texts that suggest that this is, in fact, Aquinas's view of material substances.

along with various accidental forms, together compose individual material substances, or *supposita*. This basic structure is then expanded to include immaterial substances such as angels, who are composed of their essences or natures as well as various accidental forms, and God, who alone is identical to His essence or nature. Since angels are immaterial, there is no prime matter, or matter of any sort, in an angelic essence. The essence of an angel just is its substantial form. Angels are still composite substances on this model, however. Each angel has, in addition to its essence or substantial form, various accidental forms as parts.¹⁹⁴ Only God is identical to His simple, immaterial essence.

One recent interpretation of Aquinas's ontology of material objects that comes very close to the alternative model presented here is the one offered by Eleonore Stump in her book, *Aquinas*. In her chapter on Aquinas's "theory of things", she characterizes individual material substances, or "supposits" as follows:

any thing which has a substantial form necessarily also has accidents, even though it is not necessary that it have one accident rather than another. So a substantial form is not the only metaphysical constituent of a thing; any thing will also have accidental forms as metaphysical constituents. In addition, for material substances, the matter that makes the substantial form of a material supposit a particular is also a constituent of the supposit. So any supposit has more metaphysical constituents than just a substantial form. Insofar as all these constituents compose the supposit, the supposit is not identical to any subset of them.¹⁹⁵

¹⁹⁴ In section 2.4.1 below I will introduce some texts that suggest that an angel is indeed a composite entity, according to Aquinas, and has its accidental forms as further metaphysical parts.

¹⁹⁵ Stump, *Aquinas*, p. 50. See also *Ibid.*, pp. 44-45, 56, and 112-113. For other interpretations of Aquinas's general ontology according to which individual substances or *supposita* include their accidental forms as further metaphysical parts, see: Christopher Hughes, *Aquinas on Being Goodness and God* (New York: Routledge, 2015): p. 68; Gyula Klima (trans. and comm.), "Thomas Aquinas On Being and Essence", in Gyula Klima, Fritz Allhoff, and Anand Jayprakash Vaidya (eds.), *Medieval Philosophy: Essential Readings with Commentary* (Malden, MA: Blackwell, 2007): p. 234; Wippel, *Metaphysical Thought*, pp. 241, 243, 244, 245-246, 247, 248; Richard Cross, "Aquinas on Nature, Hypostasis, and the Metaphysics of the Incarnation", *The Thomist*, Vol. 60, No. 2 (1996): pp. 175-176; J.L.A. West, "The Real Distinction Between Supposit and Nature", in Peter Kwasniewski (ed.), *Wisdom's Apprentice: Thomistic Essays in Honor of Lawrence Dewan, O.P.* (Washington, D.C.: Catholic University of America Press, 2007): p. 92, 97. At pages 101-102 of his *Metaphysical Themes*, Robert Pasnau briefly traces a distinction in the works of some medieval philosophers between "thin metaphysical substances" (composites of prime matter and substantial form) and "thick concrete substances" (composites of prime matter, substantial form, and various accidental forms), which is essentially the same as my distinction here between essences and individual

Christopher Hughes also gives a similar interpretation of Aquinas's view of angels:

Although Aquinas does say that angels are forms, he also makes statements that seem to preclude the identification of an angel with any form. He clearly holds that an angel is composed of essence and accidents, and likewise of essence and esse. If, however, an angel is composed of essence and accidents, and essence and esse, it is hard to see how he—as opposed to his nature—can be a form. A substantial form includes only what belongs to a thing's essence; an accidental form includes only what is outside of a thing's essence. So if an angel is a form, then—since that angel 'includes' (is composed of) both essence and accidents—it would seem that some form is neither purely substantial nor purely accidental.¹⁹⁶

I will have more to say later about the interpretive advantages of the alternative model, as well as what sort of textual evidence can be given in support of it, but, for now, the foregoing descriptions should be enough to show that the alternative model of Aquinas's general ontology rejects at least claims 1 and 3 of those that were used to characterize Brower's model above.

In addition to its alternative conception of individual substances, the alternative model also offers an alternative conception of accidental unities. Given that, on this model, accidental forms are metaphysical parts of individual substances, accidental unities cannot be understood as having individual substances as proper parts, as they are in Brower's model. Claims 2 and 4, then, must also be rejected. According to the alternative model, individual substances must be understood as having accidental unities as parts. The compositional relations described in claims 2 and 4, then, are reversed in this picture. An individual substance is composed of a substantial form, prime matter, and all of the accidental forms that characterize it at that time, and an accidental unity is composed of the same substantial form, the same prime matter, and *one* of the same accidental forms. An accidental unity, then, is a sort of partial composition of an individual

substances. Kathrin Koslicki also briefly considers the possibility that accidental forms might be parts of material substances in Aristotle's ontology in her *The Structure of Objects* (Oxford: Oxford University Press, 2008): p. 134.

¹⁹⁶ Christopher Hughes, "Aquinas on Continuity and Identity", *Medieval Philosophy and Theology*, Vol. 6 (Mar., 1997): p. 96-97. See also Christopher Hughes, *Aquinas on Being Goodness and God*, pp. 68-74, 138-141. For other interpretations of Aquinas's general ontology according to which angels are composite in the way described here, see: Stump, *Aquinas*, pp. 37, 44-45, and 485, fn53; Wippel, *Metaphysical Thought*, pp. 244-245, 246, and 247.

substance's metaphysical parts within the whole that is the individual substance or *suppositum* itself.

As an illustration of how this conception of accidental unities is supposed to work, consider the following breakdown of a particular individual substance, Socrates. According to the alternative model of Aquinas's ontology of material objects, Socrates will, at any particular time, be composed of his substantial form (his rational soul), his prime matter, and all of the various accidental forms that characterize him at that time, such as whiteness, virtuosity, snub-nosedness, etc. One of Socrates' accidental unities, "white-Socrates" for example, will be composed of Socrates' essence, that is, a certain type of substantial form and prime matter, and one of his constituent accidental forms (namely, whiteness). And there will be a different accidental unity "within" Socrates for every one of his accidental forms. An immaterial accidental unity, on the other hand, will be composed of an angelic essence (an angel's substantial form) and one of that angel's accidental forms, such as one of its intellectual virtues or one of the intelligible species through which it cognizes.¹⁹⁷ There will also be a different accidental unity "within" that angel for every one of the accidental forms that inheres in its unique essence.

On the present model, both substantial forms and accidental forms are metaphysical parts of individual substances. And so a proponent of the alternative model cannot say that these two sorts of forms are distinguished from one another by their differing mereological relations to substances. As a result, the alternative model forces us to reject claim 7 of those that we used to characterize Brower's as well. On the other hand, a proponent of the alternative model could

¹⁹⁷ Aquinas speaks of angels as having these and other sorts of accidents in various places (see, for example: Aquinas, *ST*, I-II, Q. 50, A. 6; Aquinas, *QDPD*, Q. 7, A. 4, Co.; Aquinas, *QQ*, 2, Q. 2, A. 2, Co.; Aquinas, *QQ*, 2, Q. 2, A. 2, Ad. 1). For more on the relationship between angels and their accidents in Aquinas's ontology, see section 2.4.1 below.

continue to maintain that both substantial forms and accidental forms are best understood as particularized properties and propose that these two sorts of properties be distinguished by their differing mereological relations to *essences*. For, on the alternative model, one could say that a substantial form is a property that lies within an individual substance's essence, and an accidental form is a property that lies outside of that essence. However, I would like to propose a more dramatic revision of claim 7. It is my contention that the characterization of substantial and accidental forms in claim 7 is explanatorily backwards. On my view, it is not the case that substantial forms are a different sort of thing from accidental forms because of their location within the essence of an individual substance. Rather, substantial forms are located in the essence of an individual substance because they are a different sort of thing from accidental forms. It is because substantial forms are members of an entirely different ontological category that they play a different role in the substances of which they are parts. Now, to which ontological category substantial forms belong is, of course, still to be determined. That is the topic of this dissertation. But, minimally, I think that a proponent of the alternative model should insist on there being an intrinsic difference between accidental and substantial forms – not in terms of a difference between two sorts of properties, but in terms of a difference between accidental forms as properties on the one hand, and substantial forms as some sort of *sui generis* particular on the other.¹⁹⁸ Now, the basic features of the alternative model outlined above do not necessitate such a move, but once we are willing to consider both substantial forms and accidental forms as

¹⁹⁸ One way to do this would be to construe accidental forms as properties and substantial forms as irreducible “kind instances” (see Michael J. Loux, *Metaphysics: A Contemporary Introduction*, Third Edition (New York: Routledge, 2006): pp. 107-117 and E. J. Lowe, *The Four-Category Ontology: A Metaphysical Foundation for Natural Science* (Oxford: Oxford University Press, 2006): pp. 15-19, 25-28 for support of this proposal, and Armstrong, *A World of States of Affairs*, pp. 65-68 and Alexander Bird, “Are Any Kinds Ontologically Fundamental?” In Tuomas E. Tahko (ed.), *Contemporary Aristotelian Metaphysics* (Cambridge, UK: Cambridge University Press, 2012): pp. 94-104 for a critique). In Chapter Four I will explore the possibility that substantial forms might be more like activities or processes than properties. If that turns out to be true, then they would indeed be very different from many types of accidental forms, though they would still have to be distinguished from accidental forms in the category of action. I will consider this issue in more detail in Chapter Four.

metaphysical parts of individual substances, there is certainly more pressure to insist on there being intrinsic differences between these two sorts of forms than there is on Brower's model.

Recall that, according to claim 8 of those that we used to characterize Brower's model of Aquinas's general ontology above, the relationship between an accidental unity and its parent substance is one of Numerical Sameness Without Identity. According to Brower, an accidental unity and its parent substance are numerically the same since they share the same matter, but not numerically identical because they have different metaphysical parts and different persistence conditions. According to the alternative model of Aquinas's general ontology, while it is true that accidental unities and individual substances have different metaphysical parts, and, as a result, different persistence conditions, the relationship between an accidental unity and its individual substance is more straightforwardly one of part to whole. The accidental unity includes the substantial form of the individual substance, its prime matter, and one of its accidental forms, and the individual substance includes its substantial form, its prime matter, and all of its accidental forms. On Brower's model, too, accidental unities and their parent substances are instances of mereological overlap: accidental unities have all of the same parts as their parent substances plus one. But Brower maintains nevertheless that there are two distinct hylomorphic compounds present in such cases. And because accidental unities are included in his map of the fundamental entities of Aquinas's general ontology, Brower must also maintain that there are two distinct, *equally ontologically fundamental* hylomorphic compounds present.

I will raise some concerns for this feature of Brower's account later on, but at this point I would like to emphasize that the alternative model is not similarly committed to the doctrine of Numerical Sameness Without Identity. For if accidental forms are proper parts of individual substances, then accidental unities are what I have referred to as "partial compositions" of the

metaphysical parts of individual substances. Each accidental unity is composed of some subset of the individual substance's metaphysical parts. One can, at one time, divide Socrates into white-Socrates and the set of all of his other accidental forms, or, at another time, divide him into seated-Socrates and the set of all of his other accidental forms, and so on for the other accidental unities. This is similar to the way in which Socrates' quantitative parts can be divided at one time into his top and bottom halves and at another time into his left and right halves. The point to emphasize here is that, on the alternative model of Aquinas's general ontology, while accidental unities are, in some sense, numerically distinct from the individual substances of which they are parts, it is not clear to me that they are equally ontologically fundamental. There is room here to say that, on the alternative model, accidental unities, while not wholly excluded from Aquinas's ontology, should be understood as ontologically derivative, not fundamental. In this way, the alternative model might say of accidental unities what Brower says of integral parts: that they "must be conceived of as logically posterior to the wholes of which they are the proper parts", and thus "wholly derivative beings, and hence not to be included in his fundamental ontology".

If what I have said in the last paragraph about the alternative model's conception of accidental unities is correct, then this also forces us to modify Brower's account of property-possession as well. On Brower's model, an accidental unity and its parent substance can be said to possess the very same property at the same time, albeit in different ways. Brower's account of property possession is based on a plausible mereological principle that we might call the "Property Possession Principle".¹⁹⁹ According to the Property Possession Principle, a property is possessed primarily by any composite that has that property as a part, and only secondarily by any entity that, along with that property, composes some further entity. Based on this principle,

¹⁹⁹ See his *Aquinas's Ontology*, p. 88. Brower calls this the "Aristotelian Conception of Form or Property Possession".

Brower explains that when an accidental unity and its parent substance share a certain property, it is the accidental unity that primarily possesses that property or is characterized by that property in the first instance, whereas the parent substance possesses that property only derivatively, and so is characterized by that property secondarily.

Given that the alternative model of Aquinas's general ontology has a different conception of individual substances and accidental unities, it may come as no surprise that it also offers a different account of property possession. Recall that, on the alternative model, there are at least three sorts of composites in play. There are essences, which are composed of substantial forms and prime matter, there are accidental unities, which are composed of substantial forms, prime matter, and one of the individual substance's accidental forms, and there are individual substances, which are composed of substantial forms, prime matter, and all of the accidental forms that characterize it at that time. If we hold fixed Brower's intuitively plausible Property Possession Principle, then it might seem like a proponent of the alternative model should say that, for any property shared by all three composites, that property is possessed secondarily by the essence, and primarily by the accidental unity, but also primarily by the individual substance. Are there, then, at least two primary possessors, and one secondary possessor of each property had by the individual substance?

I think that there is a way for a proponent of the alternative model to say that, for any property possessed by an individual substance, the individual substance and the individual substance alone is the sole and primary possessor of that property. The solution here is based on two further, independently plausible, mereological principles. The first principle is this: no part of an individual substance or *suppositum* is itself an individual substance or *suppositum*. We might call this the "Unicity Principle". The second principle outlines a unique feature of

individual substances. According to this second principle, only an individual substance or *suppositum* is of the right ontological category to be a possessor of, or to be characterized by, a property. We might call this second principle the “Candidacy Principle”. By applying the Unicity Principle, we reach the conclusion that neither the essence of an individual substance nor any of its accidental unities are themselves individual substances or *supposita*, since they are parts of an individual substance or *suppositum*. Next, by applying the Candidacy Principle, we get the further conclusion that, as a result of our first conclusion, neither the essence of an individual substance nor any of its accidental unities are of the right ontological category to possess or be characterized by any property. Finally, putting these sub-conclusions together, we get the result that for any property possessed by an individual substance, the individual substance itself is the one and only possessor of that property.^{200, 201}

The alternative model of Aquinas’s general ontology, then, does not need a dual-account of property possession like the one found in Brower’s model, due to the fact that it has a principled way of eliminating from candidacy all other potential possessors. In terms of its

²⁰⁰ That both kind-attributions and property-attributions are “maximal” in this sense has been recently defended by Andrew M. Bailey (see Andrew M. Bailey, “You Needn’t Be Simple”, *Philosophical Papers*, Vol. 43, No. 2 (Jul., 2014): pp. 145-160), Michael B. Burke (see, for example: Michael B. Burke, “Is My Head a Person?”, in Klaus Petrus (ed.), *On Human Persons* (Frankfurt: Ontos Verlag, 2004): pp. 107-126; Michael B. Burke, “Persons and Bodies: How to Avoid the New Dualism”, *American Philosophical Quarterly*, Vol. 34, No. 4 (Oct., 1997): pp. 457-467; Michael B. Burke, “Dion, Theon, and the Many-Thinkers Problem”, *Analysis*, Vol. 64, No. 3 (Jul., 2004): pp. 242-250; Michael B. Burke, “Dion and Theon: An Essentialist Solution to an Ancient Puzzle”, *The Journal of Philosophy*, Vol. 91, No. 3 (Mar., 1994): pp. 129-139) and Theodore Sider (see, for example: Theodore Sider, “Maximality and Microphysical Supervenience”, *Philosophy and Phenomenological Research*, Vol. 66, No. 1 (Jan., 2003): pp. 139-149; Theodore Sider, “Maximality and Intrinsic Properties”, *Philosophy and Phenomenological Research*, Vol. 63, No. 2 (Sep., 2001): pp. 357-364). (For critiques of “maximalism”, see C. S. Sutton, “Against the Maximality Principle”, *Metaphysica*, Vol. 15, No. 2 (Nov., 2014): pp. 381-389; David Mark Kovacs, “Is There a Conservative Solution to the Many Thinkers Problem?”, *Ratio*, Vol. 23, No. 3 (Sep., 2010): pp. 275-290.) In section 2.4.1 below I will introduce some texts that suggest that Aquinas himself was committed to both of the mereological principles that I have introduced here, and so there is reason to believe that he held a similar account of property possession.

²⁰¹ The view becomes slightly more complicated when we consider the relationship between an individual substance and its prime matter and substantial form. Because prime matter and substantial form are proper parts of essences, and essences are proper parts of individual substances, in order to say that an individual substance possesses, or is characterized by, its prime matter and substantial form, it must also be said that the relation of metaphysical parthood is transitive, which is an additional controversial claim entailed by the view. I thank Jon Jacobs for pointing this out to me in conversation.

theoretical simplicity this would appear to be a virtue of the account. And later on I will introduce some further philosophical reasons to prefer the alternative model of property possession over Brower's. But before moving on to my comparison of these two models of Aquinas's general ontology to other contemporary substance ontologies, and my analysis of the interpretive and philosophical advantages of the alternative model, I want to first consider one last application of the model that I have worked to build in this section of the chapter.

Earlier we saw that on Brower's model of Aquinas's general ontology, the post-mortem persistence of human persons is to be understood as follows: at death a human person loses her prime matter, but survives as temporarily composed solely of her substantial form (her rational soul), awaiting the eventual return of her body (or some suitable selection of matter) at the resurrection. According to Brower's model, then, during this life a human person is composed of her substantial form and prime matter, and the same human person will also composed of the very same parts later at the resurrection. But during the interim, the human person will be composed of just her substantial form. Notice that since Brower wants to maintain that, for Aquinas, human persons do survive their deaths into the interim state, then, given the truth of the first claim that we used to characterize Brower's model above, he *has* to say that human persons can come to be composed of only their substantial forms, since they have lost their prime matter and there are no other metaphysical parts that they can be said to have.

The alternative model of Aquinas's general ontology, however, can offer a slightly different account of the post-mortem persistence of human persons - precisely because it rejects that first claim. Recall that, on the alternative model, an individual substance's prime matter and substantial form do not exhaust its metaphysical parts. Rather, any individual substance, or "*suppositum*", will, at any time that it exists, be composed of its substantial form, its prime

matter *and* all of the accidental forms that it possesses at that time. And so, if there are any accidental forms that can be carried through to the afterlife,²⁰² then the alternative model can give the following alternative understanding of post-mortem persistence of human persons: at death a human person loses her prime matter, but survives as temporarily composed of her substantial form (her rational soul), as well as any of the accidental forms that she can continue to possess into the afterlife, awaiting the eventual return of her body (or some suitable selection of matter) at the resurrection.

Putting all of these points together, we can summarize the relevant features of the alternative model of Aquinas's general ontology that I have described here as follows:

- (1') An individual material substance is composed of prime matter, a substantial form, and all of the accidental forms that it possesses at that time.
- (2') A material accidental unity is composed of an individual material substance's prime matter and substantial form (the individual material substance's essence) and one of the individual material substance's accidental forms.
- (3') An individual immaterial substance is composed of its substantial form and all of the accidental forms that it possesses at that time.
- (4') An immaterial accidental unity is composed of an individual immaterial substance's substantial form (the individual immaterial substance's essence) and one of the individual immaterial substance's accidental forms.
- (5') [Acts of existence, integral parts, multi-substance artifacts and] accidental unities are not to be included in Aquinas's fundamental ontology.²⁰³

²⁰² In 2.4.1 below, I will introduce some texts that indicate that Aquinas himself thought that there were such accidental forms.

²⁰³ The reader will notice that I have not discussed acts of existence or integral parts in this section of the chapter (and I have only briefly mentioned multi-substance artifacts), nor have I given any reason to exclude them from Aquinas's fundamental ontology. I have left Brower's fifth claim mostly intact here because I find his reasons for excluding these entities mostly persuasive. But the ontological status of such entities is not an issue on which I have a firm position either way. The reader may omit the bracketed text, then, and thereby re-introduce acts of existence, integral parts, and multi-substance artifacts into Aquinas's general ontology through the alternative model if he or she so desires. I do not think it will have any effect on the arguments that follow.

[(6) Prime matter is best understood as a kind of “gunky stuff”.]²⁰⁴

(7’) Accidental forms and substantial forms are of fundamentally distinct ontological categories: accidental forms are best understood as certain sorts of particularized properties, and substantial forms are best understood as some other kind of sui generis particular.

(8’) The relationship between an accidental unity and its parent substance is one of part to whole. Accidental unities are “partial compositions” of the metaphysical parts of individual substances.

(9’) Accidental forms are possessed primarily and, indeed, exclusively by individual substances.

(10’) A human person, while, prior to her death, is composed of her substantial form, prime matter, and all of her accidental forms, at death comes to be temporarily composed of her substantial form (her rational soul) and any of her accidental forms that may be carried through to the afterlife.

2.3 Aquinas and Contemporary Substance Ontologies

According to Brower, Aquinas’s ontology of material objects is a version of substratum theory.²⁰⁵ It is a version of substratum theory in that it says that there is more to a material object than its properties: there is, in addition to those properties, a “substratum” in which those properties are said to inhere.²⁰⁶ Most contemporary substratum theorists posit the existence of some sort of “bare particular” to serve as the substratum for a material object’s properties, where a bare particular is, importantly, not itself a property, nor is it composed of properties - it is a

²⁰⁴ The reader will also notice that I have left this sixth claim untouched for the alternative model. While I do have some concerns about Brower’s conception of prime matter, my concerns are not essential to my arguments here, and so, for the sake of symmetry, I have simply copied over this sixth claim from the earlier list.

²⁰⁵ Brower, *Aquinas’s Ontology*, pp. 35-42, 130-151.

²⁰⁶ For some helpful overviews of the different versions of substratum theory, see, for example: Jeffrey E. Brower, *Aquinas’s Ontology of the Material World: Change, Hylomorphism, and Material Objects* (Oxford: Oxford University Press, 2014): pp. 35-41, 130-151; Michael J. Loux, *Metaphysics: A Contemporary Introduction*, Third Edition (New York: Routledge, 2006): pp. 84-120; Michael J. Loux, *Substance and Attribute: A Study in Ontology* (Dordrecht, Holland: D. Reidel Publishing, 1978): pp. 107-112, 112-115, 140-152.

member of a fundamentally distinct ontological category.²⁰⁷ There are roughly two main versions of “bare particularism” in the contemporary literature. Following Brower (who himself borrows his terminology from David Armstrong), we might call these two versions “thin particularism” and “thick particularism”.²⁰⁸ According to thin particularism, a material object just is a certain bare particular. According to thick particularism, a material object is a composite entity, composed of a certain bare particular and all of the properties that inhere in it.

Like contemporary substratum theories, on Brower’s model, Aquinas’s ontology of material objects says that there is indeed something more to a material object than just its properties: there is a substratum in which the properties or forms of a material object are said to inhere. In fact, according to Brower, there are actually two substrata that are said to underlie the properties of any material object, corresponding to the two sorts of hylomorphic compounds discussed above. In an accidental unity, that which underlies the accidental form is itself composite. It is the material substance, which is composed of a substantial form and prime matter. In a material substance, that which underlies the substantial form is prime matter, which is certainly “bare”, but is not a particular. As expressed in claim 6 above, on Brower’s model, the

²⁰⁷ For some contemporary proponents of bare particularism, see, for example: C.B. Martin, “Substance Substantiated”, *Australasian Journal of Philosophy*, Vol. 58 (Mar., 1980): pp. 3-10; C. B. Martin, *The Mind in Nature* (Oxford: Oxford University Press, 2007): pp. 43-44, 194-198; Armstrong, *A World of States of Affairs*, pp. 95-112; D.M. Armstrong, *Sketch for a Systematic Metaphysics* (Oxford: Oxford University Press, 2010): pp. 54-60; J. P. Moreland, “Theories of individuation: A Reconsideration of Bare Particulars”, *Pacific Philosophical Quarterly*, Vol. 79, No. 3 (Sep., 1998): pp. 251–263; J. P. Moreland, *Universals* (Montreal: McGill-Queen’s University Press, 2001); J. P. Moreland and Timothy Pickavance, “Bare Particulars and Individuation: Reply to Mertz”, *Australasian Journal of Philosophy*, Vol. 81, No. 1 (Mar., 2003): pp. 1-13; Timothy Pickavance, “In Defense of ‘Partially Clad’ Bare Particulars”, *Australasian Journal of Philosophy*, Vol. 87, No. 1 (Jan., 2009): pp. 155-158; Timothy Pickavance, “Bare Particulars and Exemplification”, *American Philosophical Quarterly*, Vol. 51, No. 2 (Apr., 2014): pp. 95-108; John Heil, *From an Ontological Point of View* (Oxford: Oxford University Press, 2003): pp. 169-178; John Heil, *The Universe As We Find It* (Oxford: Oxford University Press, 2012): pp. 12-16; Theodore Sider, “Bare Particulars”, *Philosophical Perspectives*, Vol. 20, No. 1 (Dec., 2006): pp. 387-397. For discussion and further references, see also: Andrew M. Bailey, “No Bare Particulars”, *Philosophical Studies*, Vol. 158, No. 1 (Mar., 2012): pp. 31-41; Robert K. Garcia, “Bare Particulars and Constituent Ontology”, *Acta Analytica*, Vol. 29, No. 2 (Jun., 2014): pp. 149-159; Niall Connolly, “Yes: Bare Particulars!”, *Philosophical Studies*, Vol. 172, No. 5 (May, 2015): pp. 1355-1370.

²⁰⁸ Brower, *Aquinas’s Ontology*, p. 38, citing Armstrong, *A World of States of Affairs*, p. 124.

ultimate substratum of a substance's properties is a portion of "gunky stuff" – something that is both infinitely divisible and non-individual.

On Brower's model, Aquinas holds that a material object is composed of both its ultimate substratum, prime matter, and one of its properties, its substantial form. Because a material substance is not identified with its ultimate substratum, on Brower's model, Aquinas cannot be interpreted as espousing any version of thin particularism or even "thin gunky-stuffism", as we might call it. And because the only property of which a material substance is said to be composed is its substantial form, on Brower's model, Aquinas cannot be interpreted as espousing any version of thick particularism either. Indeed, each accidental unity contains only one other accidental form, and so not even accidental unities are thick enough for thick particularism. As a result, on Brower's model, Aquinas's version of substratum theory lies somewhere in between thin and thick particularism. A material object is composed of a featureless substratum, as well as one, but no more than one, of its properties. Importantly, on Brower's model of Aquinas's general ontology, there are no thick particulars. There is no composite entity that includes all of an individual substance's properties.

According to Brower, the fact that, on his interpretation, Aquinas's ontology of material objects falls somewhere in between thin and thick particularism gives Aquinas's view some distinct advantages over each of the others. According to thin particularism, a material object is identified with a certain bare particular, and, as a result, it possesses all of its properties contingently or non-essentially. In other words, the same material object could, in principle, undergo a change in every one of its properties while remaining what it is.²⁰⁹ On Brower's model of Aquinas's ontology of material objects, however, a material object is identified with a certain

²⁰⁹ Brower, *Aquinas's Ontology*, p. 136. This is not to say that, according to thin particularism, a material object could survive without any properties at all. A thin particular might necessarily have some property or other at every moment of its existence, even if it does not necessarily have any property in particular.

substantial form/ prime matter composite, and, as a result, it possesses at least one of its properties (namely its substantial form) necessarily or essentially. In other words, while a material object could, in principle, undergo a change in each of its non-constituent properties while remaining what it is, it could not survive the loss of its substantial form, its one and only constituent property. And this does seem like a distinct advantage of Aquinas's view. If we were to identify my cat Nico with the bare particular that underlies its size, shape, behavior, and all of its species-specific qualities, then it would be at least metaphysically possible for Nico to survive the loss of its size, shape, behavior, and all of its species-specific qualities. According to thin particularism, Nico, now a cat, could in principle become a horse. According to Aquinas's substratum theory, however, Nico is a composite of substantial form and prime matter, its substantial form being something like the form of "felineity". And, so, while Nico can survive the loss of his size, shape and behavior, he cannot survive the loss of his felineity. According to Aquinas's substratum theory, Nico, now a cat, could never become a horse. And that does seem like the right thing to say.

On the other hand, according to thick particularism, a material object is identified with the set of all of its properties, along with a bare particular, and, as a result, it possesses all of its properties necessarily or essentially. In other words, no material object can survive a change in any of its properties.²¹⁰ On Brower's model of Aquinas's ontology of material objects, however, a material object is identified with a certain substantial form/ prime matter composite, and, as a result, it possesses at least some of its properties (namely its accidental forms) contingently, or non-essentially. In other words, while a material object cannot survive a change in its substantial form, it can, at least in principle, survive a change in each of its other properties. And this also seems like a distinct advantage of Aquinas's view. If we were to identify my cat Nico with the set

²¹⁰ *Ibid.*, pp. 136-137.

of his properties, including his size, shape, behavior, etc., along with a certain bare particular, then Nico would not be able to survive the loss of his size, shape or behavior. According to thick particularism, Nico, now four pounds, six ounces, could never weigh any more or less than that. According to Aquinas's substratum theory, however, Nico is a composite of substantial form and prime matter and so does not include, as further metaphysical constituents, his size, shape and behavior. And, so, while Nico cannot survive the loss of his felinity, he can survive a change in his current size and shape. According to Aquinas's substratum theory, Nico, now four pounds, six ounces, could become much heavier. And that also seems like the right thing to say.

On the alternative model of Aquinas's general ontology outlined above, Aquinas's ontology of material objects is indeed a version of substratum theory, in that it says that there is more to a material object than just its properties, but it also shares certain features with versions of the bundle theory. In Chapter 1, I characterized the bundle theory of material objects as being comprised of three main claims: (1) all of the properties of a material object are particulars, rather than universals,²¹¹ (2) material objects are collections of particular property-instances; that is, each of a material object's particularized properties, or "tropes", is one of its proper parts or constituents, and (3) material objects have no other proper parts or constituents (i.e., there are no bare particulars or substrata that might be said to underlie the properties of those objects).²¹² Like the bundle theory, Aquinas's ontology of material objects says that each of a material object's properties, or accidents, is a particular rather than a universal.²¹³ And, on the alternative model, it

²¹¹ As I mentioned earlier in Chapter 1, there are versions of the bundle theory according to which material objects are bundles of universals rather than tropes (see citations in Chapter 1, footnote 81), but since, as was shown above, Aquinas explicitly denies the existence of universals outside of the mind, it will be more helpful to compare the alternative model of his general ontology to the bundle-trope theory. And so hereafter when I refer to 'the bundle theory' let it be understood that I mean to refer to the trope version of that theory.

²¹² For versions of the bundle theory that accept all three of these claims, see citations in Chapter 1, footnote 69.

²¹³ There are versions of substratum theory according to which the properties that inhere in substrata are tropes (see, for example: Heil, *From an Ontological Point of View*, pp. 169-178; Heil, *The Universe As We Find It*, pp. 12-16; Martin, "Substance Substantiated", pp. 3-10; Martin, *The Mind in Nature*, pp. 43-44), and there are versions of

also says that each of those properties is one of its metaphysical parts. As a result, on the alternative model, Aquinas's view also shares with the bundle theory a rather straightforward account of property possession: to exemplify or to be characterized by a certain property is to have that property as a proper part.

On the other hand, on the alternative model, Aquinas's ontology of material objects is still a version of substratum theory, in that it says, contra bundle theory, that a material object is not exhausted by its properties. And so Aquinas's view rejects the third claim used above to characterize the bundle theory. According to the alternative model, every material object has a further metaphysical part, a composite essence, which serves as the substratum in which its properties are said to inhere. And so, in this way, on the alternative model, a material object is a bit more like a thick particular, in that it is composed of both the set of all of its properties and an underlying substratum. Though, once again, even the ultimate substratum of a material object on Aquinas's view, its prime matter, is not a bare particular, as is often the case for thick particularism.

If, on the alternative model of Aquinas's general ontology, Aquinas's ontology of material objects can be considered a version of the bundle theory, then it is perhaps most like the version of bundle theory articulated and defended by Peter Simons. Simons characterizes his "nuclear" bundle theory as follows:

Rather than a bare something as bearer or tie for the bundle of tropes, and rather than take the whole bundle, neglecting the distinction between essential and accidental tropes, consider a two-stage approach. In the first stage, we have a collection of tropes which must all co-occur as individuals. These form an essential kernel or nucleus of the substance... Such a nucleus forms the individual essence or individual nature of a substance, but will usually not be a complete substance, since there are further, non-essential properties that the substance has... The other tropes it has, and which may be

bundle theory according to which the properties of which material objects are wholly constituted are universals (see, once again, citations in Chapter 1, footnote 81), but, for the most part, substratum theorists tend to be immanent realists about properties, and bundle theorists tend to be trope nominalists.

replaced without the nucleus ceasing to exist, may be considered as dependent on the nucleus as a whole as bearer...The nucleus is thus itself a tight bundle that serves as the substratum to the looser bundle of accidental tropes, and accounts for their all being together.²¹⁴

Like Simons's nuclear bundle theory, Aquinas's ontology of material objects on the alternative model features a sort of internal hierarchy within material objects, according to which properties or accidents inhere in the material object's essence or nature, which is itself composite. And, as in Simons's nuclear bundle theory, on Aquinas's account of material objects this internal hierarchy grounds the difference between those metaphysical parts that the material object can lose over time while remaining in existence and those that it cannot.²¹⁵ However, unlike Simons's nuclear essences, Aquinas's essences are not comprised of properties. Rather, they are composed of substantial forms, which on the alternative model are not to be construed as properties, and prime matter, which is the featureless ultimate substratum of all material objects.

On the alternative model of Aquinas's general ontology, then, Aquinas's ontology of material objects shares certain features with both substratum theory and bundle theory. But there may also be some reasons to prefer Aquinas's view over the others. One advantage that Aquinas's ontology of material objects has over both thick particularism and any version of bundle theory that identifies material objects with sets of properties is that Aquinas is not similarly committed to the claim that material objects are *identical* to the set of their metaphysical parts. As we saw earlier, Aquinas rejects the thesis that composition is identity, and so in saying that material objects are composed of certain metaphysical constituents, he is not

²¹⁴ Simons, "Particulars in Particular Clothing", pp. 567-568. Simons himself makes the connection between his view and Aquinas's right after this passage, "If we had a separate substrate for the nucleus instead of accepting a bundle theory, we would arrive at a theory rather like that of Aristotle or Thomas, where matter is the substratum, the substantial form corresponds to the nucleus, and serves as the bearer for further, non-substantial tropes" (*Ibid.*, p. 568).

²¹⁵ Though, once again, on the alternative model's account of the afterlife, human persons can and do survive the loss of their prime matter. And so we might say that the internal hierarchy grounds the difference between those *forms* that the material object can lose over time while remaining in existence and those that it cannot.

thereby committed to the claim that a material object is identical to those metaphysical constituents. On the alternative model, a material object is composed of various properties, along with a composite essence in which those properties inhere, but it can also survive a change in those properties over time. For thick particularism, and for certain version of bundle theory, however, a material object is taken to be identical to the set of its metaphysical constituents, and so cannot admit of any sort of change in its properties.

Depending on how we construe the nature of particularized properties, Aquinas's ontology of material objects on the alternative model might also have some advantages over other versions of the bundle theory. For instance, if the right way to think of properties or accidents is as *ways* or *modes* of a substance, rather than as independent entities in themselves, then Aquinas's account gives us an underlying substratum of which they can be ways or modes.²¹⁶ Moreover, if particular properties or accidents require an underlying subject in order to be individuated from other instances of the same sort of accident or property, then Aquinas's account gives us an underlying subject that can serve as their individuator.²¹⁷ However, for those versions of bundle theory according to which tropes are both thing-like and self-individuated, much more would need to be said to demonstrate the preferability of Aquinas's account.²¹⁸

²¹⁶ For discussions of properties as "ways" or "modes" of objects, see, for example: Armstrong, *A World of States of Affairs*, 30-31, 96-99; Heil, *Ontological Point of View*, pp. 126-128; Heil, *The Universe As We Find It*, pp. 106-108; Lowe, *The Four-Category Ontology*, pp. 13-15; John Heil, "Accidents, Modes, Tropes, and Universals", *American Philosophical Quarterly*, Vol. 51, No. 4 (Oct., 2014): pp. 333-344.

²¹⁷ On the bundle theory, the only way to distinguish one material object from another is with reference to its constituent properties. The constituent properties themselves, then, cannot be distinguished from other instances of the same property by reference to the material objects of which they are constituents. For, then the account of individuation would be circular. And so, tropes must be individuated either by some other component within the object (a substratum) or they must be self-individuated.

²¹⁸ One promising strategy here would be to point out that once we make tropes into self-individuated, thing-like entities, we need some explanation for the apparent *unity* of a material object's features both at a time and over time. As I will explain later on in Chapter Three, on Aquinas's view, this is one of the roles played by substantial form.

2.4 A Case for the Alternative

Having outlined the main claims of two competing models of Aquinas's general ontology, and having compared each of those two models to other contemporary accounts of material substances, I would now like to present my case for the alternative model. First, in section 2.4.1, I will introduce some textual support for the alternative model that shows it to be a better, that is, more loyal, interpretation of *Aquinas's* general ontology. Then, in section 2.4.2, I will introduce two main reasons to prefer the alternative model on philosophical grounds. Since the ultimate goal of this dissertation is to present an account of substantial form, the stakes in this particular debate for my purposes are not particularly high. If it turns out that I am wrong about what Aquinas's general ontology looks like, I might still be right about what a substantial form is on his view. Nevertheless, I think it is important to know precisely where in Aquinas's general ontology substantial forms are located and precisely what roles they serve there. And so the arguments that follow should be seen as trying to establish the correct ontological framework within which the account of substantial form that I will give in Chapters Three and Four should be developed.

2.4.1 Interpretive Advantages

2.4.1.1 Divine Simplicity

The main disagreement between Brower's model and the alternative model outlined above pertains to accidental forms. On Brower's model, accidental forms are "outside" of individual substances; they are *not* included among their metaphysical parts. On the alternative model, accidental forms are "inside" individual substances; they *are* included among their metaphysical parts. If it can be shown, then, that Aquinas does in fact hold that accidental forms are to be included among an individual substance's parts, then this would go a long way toward

showing that the alternative model is a better interpretation of Aquinas's general ontology. And so, to begin, I would like to focus on those texts that seem to support such a conclusion.

One reason to think that, on Aquinas's view, accidental forms or accidents are indeed parts of individual substances is the way in which he argues for God's simplicity in question three of the *Prima pars*.²¹⁹ Here Aquinas argues for God's simplicity negatively, that is, by giving an exhaustive list of all of the ways in which something can be composite and all of the different sorts of parts a composite thing can have, and then systematically arguing that the God whose existence he has demonstrated in the previous question cannot be composite in any of those ways or have any of those sorts of parts. The structure of question three is as follows: In article one, Aquinas considers whether God is a body, that is, whether God has any quantitative parts. In article two, Aquinas considers whether God is composed of matter and form, that is, whether God has any essential parts. In article three, Aquinas considers whether God is the same as His essence or nature, that is, whether God has any non-essential parts. In article four, Aquinas considers whether essence and existence are the same in God, that is, whether God's existence (His "*esse*") is some part of Him that is distinct from his essence. In article five, Aquinas considers whether God is contained in a genus, that is, whether God has any "definitional parts". In article six, Aquinas considers whether there are any accidents in God, and here I want to interpret this article as asking whether God has any accidental parts (I will return to this point shortly). In article seven, Aquinas considers whether God is altogether simple, that is, whether God has any other sorts of parts not mentioned in the previous articles. And, in article eight, Aquinas considers whether God enters into the composition of other things, that is, whether God Himself is a part of anything else.

²¹⁹ Aquinas, *ST*, I, Q. 3.

Now, based on this brief summary of question three, it is clear that there is a very important shift that occurs between articles seven and eight. In article seven, Aquinas considers the various ways in which something can be composite and the various sorts of parts a composite thing can have. In article eight, however, Aquinas considers the ways in which some entity can itself be a part of some further composite. The shift here is between an analysis of the possibility of a decomposition of God into parts and the composition of some further composite that has God as one of its parts. Now, one natural way of reading this question is to see the shift between article seven and article eight as signaling a shift between not only articles seven and eight, but between article eight and all of the other articles that came before. In this way, we might read article seven as a sort of summary of the preceding articles, summarizing all of the ways in which something can be composite and all of the parts that a composite thing can be said to have discussed earlier, and inquiring further whether these ways of being composite and these various sorts of parts form a comprehensive list, that is, whether there are any other ways God could be composite, or any other sorts of parts that God might be said to have. Once Aquinas has established the comprehensiveness of articles one through six, he can then move on to ask a different sort of question in article eight, one that is only indirectly about what sorts of parts God might be said to have.

In support of this interpretation of the structure of his argument, consider the beginning of his reply in article seven:

That God is entirely simple can be shown in several ways. First, from what has been said above. For, in God there is no composition of quantitative parts, since He is not a body, nor of form and matter. Nor is there any difference in God between His nature and His *suppositum*, nor any difference between His essence and His existence. Nor is there any composition of genus and difference in Him, or of subject and accident. It is clear, then, that God is in no way composite, but is entirely simple.²²⁰

²²⁰ Aquinas, *ST*, I, Q. 3, A. 7, Co. [*Deum omnino esse simplicem, multipliciter potest esse manifestum. Primo quidem per supradicta. Cum enim in Deo non sit compositio, neque quantitativarum partium, quia corpus non est; neque*

Here we see that Aquinas himself views each of the preceding articles as detailing a particular way in which something can be composite. He also views the articles collectively as offering a comprehensive list of all of the possible ways in which something can be composite. Article eight, then, cannot be asking the very same question as the other articles (whether God is in any way composite), since Aquinas already takes himself to have decisively proven that point. Article eight asks a very different, though importantly related, question about God's nature – whether He can be said to be a part of any composite.²²¹

There are two important conclusions to draw from my interpretation of Aquinas's argument in question three. First, if I am right that articles one through six all detail various ways in which something can be composite, then article six, which considers whether there are any accidents in God, should be read as asking whether God has any accidental parts. Now, if Aquinas held that accidents were no part of any individual substance, then it would not make any sense to ask whether they are parts of God. All of the other ways of being composite mentioned in the other articles are in fact true descriptions of other substances, according to Aquinas. And so the fact that, on my interpretation, Aquinas is asking whether God has any accidents as parts is an indication that he holds that in the case of other individual substances, they do have accidents as parts. On my reading, that God is simple in that he does not have any accidents as parts is one more way in which God differs from all other things.²²²

compositio formae et materiae, neque in eo sit aliud natura et suppositum; neque aliud essentia et esse, neque in eo sit compositio generis et differentiae; neque subiecti et accidentis, manifestum est quod Deus nullo modo compositus est, sed est omnino simplex].

²²¹ For a similar interpretation of Aquinas's mode of argumentation in his treatment of Divine simplicity in the *Summa*, see Peter Weigel, *Aquinas on Simplicity: An Investigation into the Foundations of his Philosophical Theology* (Bern: Peter Lang, 2008).

²²² Given that article four asks whether God's existence is distinct from his essence, my argument here might also lend support to the claim that, for Aquinas, the existence or act of existence of a thing should be included among the metaphysical parts of every other individual substance.

Secondly, my interpretation of question three also counts against Brower's view. Recall that, according to Brower, for Aquinas, accidents are not proper parts of individual substances. Rather, accidents are proper parts of accidental unities, the other parts of which are individual substances. According to Brower, then, all other substances besides God are parts of larger composites (accidental unities). We should, expect, then, that there would be some mention of this in article eight, since it is there that Aquinas considers whether God is a part of any composite. At the very least, we should expect that Aquinas would explain to the reader that, since it has already been shown that there are no accidents in God, we can conclude that God is not part of any accidental unity. In many of the other articles, Aquinas freely refers back to previous articles when the conclusions there are relevant for the argument at hand.²²³ But we do not see any reference to article six in article eight. Instead, the only place in which God's relation to accidents is discussed is in article six itself (as well as the summary in article seven), which, according to my interpretation, is on the decomposition side of question three. If Brower's view were the correct reading of Aquinas, then Aquinas would not have to ask both whether there are any accidents in God and whether God is a part of any composite. The former would be a species of the latter.

Now, none of this is a knockdown argument against Brower's view. Aquinas could be moving from discussing a way in which God might be said to be a part of some further composite in article six, to discussing the ways in which God might be said to have parts in article seven, and then back to discussing other ways in which God might be said to be a part of some further composite in article eight. But a virtue of the alternative model is that it supports a much more natural reading of Aquinas's argument in question three, according to which articles

²²³ In the *Sed contra* of Article 2, he refers back to Article 1; In the *Corpus* of Article 4, he refers back to Articles 1 and 3; In Article 6, he refers back to Articles 2 and 3; and in Article 7, he refers to "the previous articles".

one through seven are all about the sorts of parts that God might be said to have, and only article eight shifts to a discussion of the things of which God might be said to be a part.²²⁴

2.4.1.2 Essence and Suppositum

A second reason to think that, on Aquinas's view, accidents are indeed parts of individual substances is the way in which he distinguishes between the nature or essence of an individual substance and the individual substance itself, the *suppositum*, throughout his corpus. According to Aquinas, the essence or nature of a thing is that which is common to every member of a certain species.²²⁵ In the case of material substances, essences or natures are composite; they are composed of prime matter and the substantial form that is characteristic of that species.²²⁶

²²⁴ In addition to his treatment of divine simplicity in the *Prima pars*, Aquinas also argues for the absolute simplicity of God in three other places: at *SCG*, I, Ch. 18-27, *QDPD*, Q. 7, A. 1-4, and *CT*, B. 1, Chs. 9-24. In each of these texts, the order in which Aquinas argues for his conclusions is slightly different. In the *SCG*, *QDPD* and *CT*, for instance, Aquinas argues first that there is no composition of any sort in God, and then he goes on to argue that God must therefore be said to lack all of the various sorts of parts that other things have. And the order in which Aquinas considers the different sorts of parts that God might be said to have varies. In all four of these texts Aquinas concludes that there is no composition of subject and accident in God, but only in the *ST* (A. 8) and the *SCG* (Chs. 26-27) does Aquinas also conclude that God is no part of any other thing. Nevertheless, in the *SCG*, as in the *ST*, that God is no part of any other thing is a conclusion reached after he has finished his discussion of the sorts of parts that God must be said to lack. In the *Sed contra* of article four of question seven of the *QDPD* (a *Sed contra* to which Aquinas does not offer a reply), there is also an interesting passage that reads: "Every accident depends on something else. There can be no such thing in God, because that which depends on something else, is caused to exist. And God is the first cause and is in no way caused. Therefore, in God there can be no accident." [*omne accidens habet dependentiam ab alio. Sed nihil tale potest esse in Deo, quia quod dependet ab alio, oportet esse causatum; Deus autem est causa prima nullo modo causata. Ergo in Deo accidens esse non potest*]. Note here that the concern is that, since every accident depends on something else, placing an accident in God would make God dependent on something else. Why would placing an accident in God make Him dependent on something else? I would like to suggest that what Aquinas has in mind here is that placing an accident in God would make God dependent on something else because God would thereby depend on something else for the existence of one of His parts. I think that this passage should be read, then, as supporting the alternative model.

²²⁵ See, for example, Aquinas, *ST*, I, Q. 3, A. 3, Co.

²²⁶ See, for example, Aquinas, *DEE*, Ch. 2 and Ch. 6. Strictly speaking, Aquinas says here and elsewhere that the essence of a material substance includes a substantial form of a certain kind and "common matter", where common matter is understood to have more "content" than prime matter, but less "content" than any proximate matter present in an individual substance. For example, it is of the essence of a human being that he or she be composed of flesh and bones - not any particular flesh and bones, but some flesh and bones or other. And so the essence of a human being is said to include a human being's substantial form, his or her rational soul, and flesh and bones. However, on this point I am in agreement with Brower: common matter should be understood as nothing more than prime matter specified to a certain degree by some particular substantial form. Flesh and bones is the result of some kind of soul having actualized a certain portion of prime matter. Any additional content that 'flesh and bones' has beyond 'prime matter' is content that is borrowed from a substantial form. And so I think that on Aquinas's view an essence is really composed of a substantial form and prime matter. (For Brower's take on this point, see his *Aquinas's Ontology*, p. 112.)

Importantly, both the prime matter and the substantial form of which an essence is composed are “common” in that they are not in themselves individuated.²²⁷ Hence, an essence does not include any of the individuating principles that particularize an individual substance’s substantial form, its matter, or the individual substance itself.²²⁸ What then is the relationship between an individual substance, or *suppositum*, its essence or nature, and its individuating principles? According to Brower’s model, an individual substance has all of the same metaphysical parts as its essence (namely, prime matter and substantial form), but whereas in an essence the prime matter and substantial form are common, in an individual substance the prime matter and substantial form are individuals. On Brower’s model, then, the difference between an essence and an individual substance is the difference between a universal (or set of universal principles) and an instance of that universal (or set of universal principles). Importantly, the difference here is *not* a mereological one; an individual substance does not have any additional metaphysical parts outside of its essence.²²⁹

When Aquinas himself describes the difference between the nature or essence of an individual substance and the individual substance itself, however, he consistently describes that difference in mereological terms. For instance, when comparing the complexity of human

²²⁷ See, for example: Aquinas, *ST*, I, Q. 29, A. 2, Ad. 3; Aquinas, *QDPD*, Q. 9, A. 1, Ad. 6.

²²⁸ What exactly these individuating principles amount to on Aquinas’s view is a matter of continuing scholarly debate (see, for example: Wippel, *Metaphysical Thought*, pp. 351-375). But given what Aquinas says in his commentary on Boethius’s *De Trinitate* (Aquinas, *In BT*, Q. 4, A. 2 and A. 4), it seems clear that the “quantitative dimensions” occupied by a material substance at the very moment of its creation, which, importantly, are accidents, play an important role here. *Per impossibile*, if the substantial form or prime matter of a material substance had never been associated with any particular location in time or space, then they would never have composed an *individual* substance. And so the fact that Aquinas often claims that an individual substance is “individuated through itself and through its own proper principles” (see, for example: Aquinas, *ST*, I, Q. 29, A. 1, Co.; Aquinas, *QDPD*, Q. 9, A. 1, Ad. 8) may be further evidence that he thought that certain accidents in the category of place and time were included among their constituents.

²²⁹ Brower, *Aquinas’s Ontology*, p. 112. For Brower’s account of essences or “common natures” in Aquinas, see his “Aquinas on the Problem of Universals”, pp. 8-18. For his account of how material substances are individuated, see Jeffrey E. Brower, “Matter, Form, and Individuation”, in Brian Davies and Eleonore Stump (eds.), *The Oxford Handbook of Aquinas* (Oxford: Oxford University Press, 2012): pp. 94-100.

beings to the simplicity of God in article three of question three of the *Prima pars*, (considered above), Aquinas explains that

in things composed of matter and form, the *suppositum* and its nature or essence must be distinguished, since the essence or nature includes in itself only that which falls under the definition of the species, just as humanity includes in itself that which falls under the definition of human being. For this human being is a human being, and this refers to his humanity, namely, that by which the human being is a human being. But the individual matter, with all of the individuating accidents, does not fall under the definition of the species, for this flesh and these bones, or this whiteness, or this blackness, or other things of this sort do not fall under the definition of a human being. Hence this flesh and these bones and the accidents individuating this matter are not included in humanity. Nevertheless, they are included in that which is a human being. Hence, that which is a human being possesses in itself something that humanity does not. And for this reason a human being and his humanity are not totally the same, but humanity refers to a formal part of the human being, since the defining principles are possessed formally with respect to the individuating matter.²³⁰

In this passage Aquinas seems to be saying that the relationship between the essence of a thing and the thing itself, the *suppositum*, is a mereological one: the essence of a thing is one of its parts. What other parts does an individual substance have beyond its essence? Aquinas says here that the other parts of an individual substance include its “individuating accidents”, as well as various non-essential attributes, such as its color and “other things of this sort”. This passage, then, would seem to support the alternative model. (It also lends further support to my interpretation of question three as a whole outlined above).

And this is not an isolated remark by Aquinas. In his *Commentary on Aristotle's Metaphysics*, he makes the very same point:

²³⁰ Aquinas, *ST*, I, Q. 3, A. 3, Co. [*in rebus compositis ex materia et forma, necesse est quod differant natura vel essentia et suppositum. Quia essentia vel natura comprehendit in se illa tantum quae cadunt in definitione speciei, sicut humanitas comprehendit in se ea quae cadunt in definitione hominis, his enim homo est homo, et hoc significat humanitas, hoc scilicet quo homo est homo. Sed materia individualis, cum accidentibus omnibus individuantes ipsam, non cadit in definitione speciei, non enim cadunt in definitione hominis haec carnes et haec ossa, aut albedo vel nigredo, vel aliquid huiusmodi. Unde haec carnes et haec ossa, et accidentia designantia hanc materiam, non concluduntur in humanitate. Et tamen in eo quod est homo, includuntur, unde id quod est homo, habet in se aliquid quod non habet humanitas. Et propter hoc non est totaliter idem homo et humanitas, sed humanitas significatur ut pars formalis hominis; quia principia definientia habent se formaliter, respectu materiae individuantis*].

Humanity is not altogether the same as a human being, since humanity signifies only the essential principles of a human being and excludes all of the accidents. For humanity is that by which a human being is a human being, and so includes none of the things that are accidental to a human being. Hence, all of the accidents possessed by a human being are excluded from the definition of humanity. Now, it is this particular human being himself that is a human being, that possesses the essential principles, and is that to which accidents can inhere. And so, even though the definition of a human being does not include any of the accidents that a human being possesses, nevertheless ‘human being’ does not refer to something separate from those accidents. And therefore ‘human being’ refers to the whole, and ‘humanity’ refers to a part.²³¹

What is most interesting about this passage in particular is that it describes accidents as both inhering in a material substance and as being included in the whole that is that material substance. This would seem to count against Brower’s claim that accidents must inhere in material substances “from the outside”.

Finally, that Aquinas holds that there is a mereological difference between the nature or essence of a thing and the *suppositum* is perhaps most clearly illustrated in his account of the incarnation. So, for instance, in his treatment of the incarnation in the *Tertia pars*, he states

‘Nature’ refers to the essence of the species, which the definition signifies. And if nothing else were found joined to that which pertains to the notion of the species, then it would not be necessary to distinguish the nature from the *suppositum* of the nature, which is the individual subsisting in that nature, since, in this case, every individual subsisting in some nature would be altogether identical to its nature. Now, in certain subsisting things something can in fact be found which does not pertain to the notion of the species, namely accidents and the individuating principles, as is most clear in those things that are composed of matter and form. And therefore, in such cases the nature and the *suppositum* are different things, not as if they were altogether separate from one another, but since the *suppositum* includes the nature of the species and certain other things over and above the notion of the species, ‘*suppositum*’ refers to the whole, which possesses the nature as a formal part and is perfective of it.²³²

²³¹ Aquinas, *In Met.*, B. 7, L. 5, 1379 [*Humanitas autem pro tanto non est omnino idem cum homine, quia importat tantum principia essentialia hominis, et exclusionem omnium accidentium. Est enim humanitas, qua homo est homo: nullum autem accidentium hominis est, quo homo sit homo, unde omnia accidentia hominis excluduntur a significatione humanitatis. Hoc autem ipsum quod est homo, est quod habet principia essentialia, et cui possunt accidentia inesse. Unde, licet in significatione hominis non includantur accidentia eius, non tamen homo significat aliquid separatum ab accidentibus; et ideo homo significat ut totum, humanitas significat ut pars*].

²³² Aquinas, *ST*, III, Q. 2, A. 2, Co. [*Natura enim significat essentiam speciei, quam significat definitio. Et si quidem his quae ad rationem speciei pertinent nihil aliud adiunctum inveniri posset, nulla necessitas esset distinguendi naturam a supposito naturae, quod est individuum subsistens in natura illa, quia unumquodque individuum subsistens in natura aliqua esset omnino idem cum sua natura. Contingit autem in quibusdam rebus subsistentibus*

The most straightforward way of reading these sorts of passages, I submit, is to see them as outlining a view according to which accidental forms are indeed parts of material substances.

It is passages like these that have led some other scholars of Aquinas to attribute to him the sort of view that I outlined above as well. For example, in his treatment of Aquinas's account of the incarnation, Richard Cross writes,

a *suppositum* is not some subject underlying a nature. It is not quite like Locke's substance. Rather, the *suppositum* is a whole which includes a set of parts. These parts, however, do not all exist on the same kind of ontological level. They fit together in a rather complicated way. (Thus, it would be quite wrong to saddle Aquinas with any kind of mereological bundle theory of particulars.) Aquinas, in fact, mentions three types of part included in a *suppositum*: the nature, the individuating features, and the accidents... Aquinas does not claim that the various parts are parts of the *suppositum*, but rather that they are included in a *suppositum*. Nevertheless, Aquinas does not name any other parts; so we must conclude that the *suppositum* for him will not be anything over and above these parts. The unity of the *suppositum* is guaranteed just in virtue of the peculiar types of entity that its parts are. Its parts are not in themselves *supposita*; they are types of entity that will naturally unite with each other to produce just one *suppositum*.²³³

And in his treatment of the difference between a 'supposit' and its nature in Aquinas, J.L.A.

West reaches a similar conclusion:

Although the term 'supposit' is used when Aquinas wants to talk as if there is a substratum, it is clear that he does not limit substance to a hidden 'something' underlying accidents. Rather, a substance is a whole that embraces accidents as well as formal and integral parts.²³⁴

inveniri aliquid quod non pertinet ad rationem speciei, scilicet accidentia et principia individuantia, sicut maxime apparet in his quae sunt ex materia et forma composita. Et ideo in talibus etiam secundum rem differt natura et suppositum, non quasi omnino aliqua separata, sed quia in supposito includitur ipsa natura speciei, et superadduntur quaedam alia quae sunt praeter rationem speciei. Unde suppositum significatur ut totum, habens naturam sicut partem formalem et perfectivam sui. For other passages in Aquinas's corpus that make similar points, see, for example: Aquinas, *QDPD*, Q. 9, A. 1, Co.; Aquinas, *QDPD*, Q. 7, A. 4, Co.; Aquinas, *QDUVI*, A. 1, Co.; Aquinas, *QDUVI*, A. 3, Co.; Aquinas, *QDUVI*, A. 3, Ad. 14; Aquinas, *QQ*, 2, Q. 2, A. 2, Co.; Aquinas, *QQ*, 2, Q. 2, A. 2, Ad. S.C.; Aquinas, *CT*, B. 1, Ch. 10; Aquinas, *CT*, B. 1, Ch. 154; Aquinas, *In DA*, B. 3, L. 8, 706; Aquinas, *DEE*, Ch. 2; Aquinas, *In Met.*, B. 7, L. 11, 1521-1522; Aquinas, *In Met.*, B. 7, L. 12, 1535-1536; Aquinas, *In Met.*, B. 8, L. 3, 1710; Aquinas, *QDA*, Q. 1, A. 17, Ad. 10; Aquinas, *SCG*, I, Ch. 21, N. 2; Aquinas, *SCG*, IV, Ch. 81, N. 10; Aquinas, *In Sent.*, B. 1, D. 23, Q. 1, A. 1. For more on Aquinas's distinction between individual substances or *supposita* and essences or natures, see Wippel, *Metaphysical Thought*, pp. 238-253.

²³³ Cross, "Aquinas on Nature", pp. 175-176.

²³⁴ West, "The Real Distinction", p. 92.

Based on the passages above, then, I conclude that there is strong textual evidence to think that, for Aquinas, a *suppositum*, an individual substance, is not exhaustively composed of its prime matter and its substantial form, as it is on Brower's model. Rather, a *suppositum* includes its accidental forms, or accidents, as further metaphysical parts.

2.4.1.3 'Substance' is Said in Many Ways

If the alternative model is indeed the correct interpretation of Aquinas, and accidental forms are indeed parts of individual substances in Aquinas's ontology, why then does Aquinas almost never include the accidental forms of an individual substance in the list of its metaphysical parts? And why does he regularly refer to the composite of substantial form and prime matter as a substance? With regard to the first question, there are texts that suggest that Aquinas has principled reasons for bracketing off all of the accidental forms of individual substances in the context of metaphysical discussions. First, according to Aquinas, some substances could in principle be characterized by an infinite number of accidents, and listing them all would be impossible.²³⁵ Moreover, accidental forms are just those metaphysical parts that a substance possesses at a particular time, not what it possesses essentially or for the most part, and so they are not the subject of any proper science, including the science of metaphysics. As Aquinas puts it in his *Commentary on Aristotle's Metaphysics*,

No science, no matter how careful it is (or thoughtful, as another translation reads), that is, no matter how diligently it inquires into those things to which it pertains, is found to be concerned with accidental being: neither practical science (which is divided into the science of action and the science of production, as was said above), nor even theoretical science.²³⁶

²³⁵ Aquinas, *In Met.*, B. 6, L. 2, 1174.

²³⁶ *Ibid.*, B. 6, L. 2, 1173 [*nulla scientia quantumcumque sit studiosa aut meditativa, ut alia translatio habet, idest diligenter inquisitiva eorum quae ad ipsam pertinent, invenitur esse de ente per accidens. Sed nec etiam practica quae dividitur per activam et factivam, ut supra dictum est, neque scientia theoricæ*]. See also, Aquinas, *In BT*, Q. 5, A. 3, Co.

With regard to the second question, it must be noted first that, following Aristotle's remarks in Book V, Chapter 10 of his *Metaphysics*, Aquinas often distinguishes at least three ways of speaking of substances.²³⁷ First, we can speak of substantial forms as substances inasmuch as substantial forms are the "cause of being" for the others. Let us refer to this category of substance as substance₁. Second, we can speak of essences, natures, or quiddities as substances, inasmuch as they are signified by the definitions of things. Let us refer to this category of substance as substance₂. Finally, we can speak of individual substances (elements, minerals, plants, animals, human beings, angels, etc.) as substances, inasmuch as they are the ultimate subjects of predication. Let us refer to this category of substance as substance₃.

This threefold distinction between ways of speaking of substances runs throughout Aquinas's works, though occasionally Aquinas collapses the first into the second. For instance, in his discussion of the Trinity in the *Prima pars*, Aquinas writes,

Following what the Philosopher says in Book V of the *Metaphysics*, 'substance' is spoken of in two ways. In one way substance is spoken of as the quiddity of a thing, which the definition signifies. In this way we say that the definition signifies the substance of a thing, which the Greeks called *ousia*, and which we may speak of as the 'essence' of a thing. In another way, substance is spoken of as the subject or 'suppositum', that which subsists in the genus of substance.²³⁸

This general distinction is also reiterated in his treatment of the incarnation in the *Tertia pars*:

"Substance, as is clear from Book V of the *Metaphysics*, is spoken of in two ways: in one way as

²³⁷ Aquinas, *In Met.*, B. 5, L. 10, 898-905. For more on this threefold distinction in Aquinas, see Wippel, *Metaphysical Thought*, pp. 198-208. Compare, also, to the threefold distinction between senses of substance in Aristotle outlined in Kathrin Koslicki, "The Causal Priority of Form in Aristotle", *Studia Philosophica Estonica*, Vol. 7, No. 2 (2014): pp. 113-141 (in particular, pp. 116-117) and Kathrin Koslicki, "In Defense of Substance", *Grazer Philosophische Studien*, Vol. 91, No. 1 (Jul., 2015): pp. 59-80. (in particular, pp. 72-73).

²³⁸ Aquinas, *ST*, I, Q. 29, A. 2, Co. [*secundum philosophum, in V Metaphys., substantia dicitur dupliciter. Uno modo dicitur substantia quidditas rei, quam significat definitio, secundum quod dicimus quod definitio significat substantiam rei, quam quidem substantiam Graeci usiam vocant, quod nos essentiam dicere possumus. Alio modo dicitur substantia subiectum vel suppositum quod subsistit in genere substantiae*].

the essence or nature of a thing; in another way as the *suppositum* or hypostasis.”²³⁹ The significance of this distinction for my purposes becomes clear when we also recognize that, according to Aquinas, the essence or nature of an individual substance is that which is exhaustively composed of its substantial form and prime matter. As Aquinas explains in his *De ente et essentia*,

From the conjunction of both [substantial form and matter] there results that being in which a thing subsists in itself, and from them something essentially one is produced. And therefore, from their conjunction a certain essence results. Hence, the form, though in itself it is not considered to have the complete notion of an essence, nevertheless, is part of a complete essence... [On the other hand,] from accident and subject something essentially one is not produced, but something accidentally one. And therefore from their conjunction a certain essence does not result, as it does from the conjunction of form and matter. As a result, an accident has neither the notion of a complete essence, nor is part of a complete essence.²⁴⁰

And so, given these points, when Aquinas refers to the composite of substantial form and prime matter as substance, we need not infer from these remarks that he holds that an individual substance has substantial form and prime matter as its only metaphysical parts. That would be to collapse the distinction between substance₃ and substance₂. What he means when he refers to the composite of substantial form and prime matter as substance is that substantial form and prime matter comprise an essence, nature or quiddity, which we can call a substance, as long as we keep in mind that by doing so we are calling it a substance₂, not a substance₃, which is the individual substance or *suppositum* of which it is a part.²⁴¹

²³⁹ Aquinas, *ST*, III, Q. 2, A. 6, Ad. 3 [*Substantia autem, ut patet V Metaphys., dupliciter dicitur, uno modo, essentia sive natura; alio modo, pro supposito sive hypostasi*].

²⁴⁰ Aquinas, *DEE*, Ch. 6 [*ex coniunctione utriusque relinquitur illud esse, in quo res per se subsistit, et ex eis efficitur unum per se; propter quod ex coniunctione eorum relinquitur essentia quaedam. Unde forma, quamvis in se considerata non habeat completam rationem essentiae, tamen est pars essentiae completae... Unde ex accidente et subiecto non efficitur unum per se, sed unum per accidens. Et ideo ex eorum coniunctione non resultat essentia quaedam, sicut ex coniunctione formae ad materiam. Propter quod accidens neque rationem completae essentiae habet neque pars essentiae completae est*].

²⁴¹ I also think that there is a similar ambiguity in Aquinas’s use of the term ‘subject’ (subiectum). Aquinas seems to recognize two ways of speaking of something’s being a subject of an accidental form (see, for example, Aquinas, *QDPD*, Q. 9, A. 1, Co.). In one sense the subject of an accidental form is that which “underlies” the accidental form,

2.4.1.4 Further Support

Before moving on to consider some reasons to prefer the alternative model on philosophical grounds, I would like to introduce some textual support for some of the other claims that comprise the alternative model of Aquinas's general ontology as well. First, while I have thus far focused on Aquinas's account of material substances, there are passages that suggest that, for Aquinas, angels, too, have their accidental forms as further metaphysical parts. For instance, in his reply to objection three of question fifty, article six of the *Prima secundae*, Aquinas explains that "in angels there are no essential parts, but there are potential parts [*partes secundum potentiam*], inasmuch as the intellect of an angel is perfected by several intelligible species, and its will is related to several things."²⁴² Here Aquinas's distinction between essential parts and potential parts looks very close to the distinction between essential and accidental metaphysical parts on which the alternative model was built above. What this passage tells us is that, according to Aquinas, angels do have simple essences, but also that they are not to be identified with those essences. Angels have further "potential parts" related to their modes of cognition and the states of their wills. An even clearer statement of this view is found in Aquinas's *Quaestiones quodlibetales*. In the second article of the second question of the second set of quodlibetal questions, Aquinas explains that

that to which an accidental form is "added". We might call this the "metaphysical sense" of 'subject'. In another sense, the subject of an accidental form is that which is characterized by the accidental form, that of which the accident can be predicated. We might call this the "attributive sense" of 'subject'. On Brower's model, the composite of substantial form and prime matter (the material substance) turns out to be the subject of accidents in both senses, whereas on the alternative model, the composite of substantial form and prime matter (the essence or nature) is only a subject of an accidental form in the metaphysical sense. The individual substance (that which includes the essence and all of the accidental forms) is the subject of accidental forms in the attributive sense. I will say more about this last claim in what follows.

²⁴² It is worth noting that the Latin phrase '*partes secundum potentiam*', translated here as 'potential parts' can also be translated as 'parts pertaining to power'. As Aquinas is keen to point out elsewhere, powers are accidents (see, for example: Aquinas, *ST*, I, Q. 77, A. 1, Ad. 5), and so if the powers of an angel are parts of that angel, then angels have accidents as parts.

For any thing to which anything can be accidental, which is not included in the account of its nature, in that thing the thing and that which is [*quod quid est*], or the *suppositum* and its nature, differ. For, in the signification of the nature is included only that which is included in the account of the species. But the *suppositum* possesses not only those things that pertain to the account of the species, but also other things which are accidental; and therefore the *suppositum* is signified as a whole. The nature or quiddity, however, is signified as a formal part.

In God alone one does not find any accident over and above His essence, since His existence is His essence, as was said. And therefore in God the *suppositum* is altogether the same as His nature. In an angel, however, it is not altogether the same, since something can be accidental to an angel over and above that which is included in the account of its nature, since the very existence of an angel is over and above its essence or nature. And certain other things are accidental to it which altogether do pertain to the *suppositum*, but not to the nature.²⁴³

Here we see that, according to Aquinas, the immaterial “suppositum” that is an angel is not identical to its nature or essence as it is on Brower’s model. Rather, the immaterial suppositum includes not only a certain unique nature, but also various “other things [which are] accidental to it”. Only God has no accidental characteristics and so is identical to His essence. I submit that the conclusion that we should draw from such passages is that, on Aquinas’s considered view, angels, like material substances, have their accidental forms as further metaphysical parts.

According to claim 9’ of those used to characterize the alternative model outlined above, accidental forms are possessed primarily and, indeed, exclusively by individual substances. This stands in contrast to the more elaborate account of property possession present in Brower’s model, according to which accidental forms are possessed primarily by accidental

²⁴³ Aquinas, *QQ*, 2, Q. 2, A. 2, Co. [*cuicumque potest aliquid accidere quod non sit de ratione suae naturae, in eo differt res et quod quid est, sive suppositum et natura. Nam in significatione naturae includitur solum id quod est de ratione speciei; suppositum autem non solum habet haec quae ad rationem speciei pertinent, sed etiam alia quae ei accidunt; et ideo suppositum signatur per totum, natura autem, sive quidditas, ut pars formalis. In solo autem Deo non invenitur aliquod accidens praeter eius essentiam, quia suum esse est sua essentia, ut dictum est; et ideo in Deo est omnino idem suppositum et natura. In Angelo autem non est omnino idem: quia aliquid accidit ei praeter id quod est de ratione suae speciei: quia et ipsum esse Angeli est praeter eius essentiam seu naturam; et alia quaedam ei accidunt quae omnino pertinent ad suppositum, non autem ad naturam*]. Christopher Hughes makes much of this passage in both his recently published book (see: Hughes, *Aquinas on Being, Goodness and God*, pp. 67-74) and in one of his earlier articles (Hughes, “Aquinas on Continuity and Identity”, pp. 96-97), as does Wippel in chapter eight of his book (see: Wippel, *Metaphysical Thought*, pp. 243-253).

unities and only derivatively by their parent substances. Earlier, in formulating the alternative model's account of property possession, I made use of two mereological principles. The first, which I called the "Unicity Principle", says that no part of an individual substance or suppositum is itself an individual substance or suppositum. The second, which I called the "Candidacy Principle", says that only an individual substance or suppositum is of the right ontological category to be a possessor of, or to be characterized by, a property. There are passages that suggest that Aquinas himself was committed to both of these principles.

First, regarding the Unicity Principle, Aquinas frequently asserts that no part of an individual substance or "hypostasis" is itself an individual substance or hypostasis. So, for example, in the *Summa contra gentiles*, Aquinas explains,

'Substance', following the Philosopher, is spoken of in two ways: namely, for a *suppositum* in the genus of substance, which is called an hypostasis, and for the what-it-is of a thing, which is its nature. But *none of the parts* are called particular substances as if they were subsisting through themselves, rather they subsist in the whole. Hence they cannot be called hypostases, since none of them are complete substances. Otherwise, it would follow that in one human being there are as many hypostases as there are parts.²⁴⁴

Elsewhere, Aquinas uses this basic principle as a premise in some of his arguments for other conclusions, as evidenced by the following passage:

The soul is a part of the human species, and therefore, even while it is separated [from the body], since it nevertheless retains in its nature a tendency to be united to it, it cannot be called an individual substance, which is an hypostasis or primary substance, just as neither the hand *nor any other part* of a human being can be called such. And thus neither the definition of nor the name person applies to it.²⁴⁵

²⁴⁴ Aquinas, *SCG*, IV, Ch. 49, N. 13, emphasis added [*Substantia enim, secundum philosophum, dicitur dupliciter: scilicet pro supposito in genere substantiae, quod dicitur hypostasis; et de eo quod quid est, quod est natura rei. Sed neque partes alicuius substantiae sic dicuntur particulae substantiae quasi sint per se subsistentes, sed subsistunt in toto. Unde nec hypostases possunt dici: cum nulla earum sit substantia completa. Alias sequeretur quod in uno homine tot essent hypostases quot sunt partes*].

²⁴⁵ Aquinas, *ST*, I, Q. 29, A. 1, Ad. 5, emphasis added [*anima est pars humanae speciei, et ideo, licet sit separata, quia tamen retinet naturam unibilitatis, non potest dici substantia individua quae est hypostasis vel substantia prima; sicut nec manus, nec quaecumque alia partium hominis. Et sic non competit ei neque definitio personae, neque nomen*].

Now, the main purpose of this last passage is to explain why the human soul is not an individual substance or an hypostasis, but, setting that particular issue to the side, one should take note of the general principle of which Aquinas makes use in reaching that conclusion: the soul cannot be considered an individual substance or hypostasis because it is a part of an individual substance or hypostasis, and no part of an individual substance or hypostasis is itself an individual substance or hypostasis.

Regarding the Candidacy Principle, Aquinas frequently asserts that all operations and properties must be attributed to individual substances or hypostases:

The hypostasis alone is that to which the operations and the properties of the nature, and those things that pertain to the account of the nature in the concrete, are attributed. For we say that this man thinks and is risible and is a rational animal. And for this reason this man is said to be the *suppositum*, since he underlies those things that pertain to a human being, receiving their predication.²⁴⁶

Now, given that, as was shown above, Aquinas is committed to something like the Unicity Principle, we should expect to him to also say that, as a result, no part of an individual substance or *suppositum* can operate or be otherwise characterized by accidents. And, in at least two places, Aquinas says just that. First, in question three of the *Prima pars* he states that

that which enters into the composition of something is not an acting thing primarily and in itself, but the composite is, for the hand does not act, but the human being acts by means of his hand, and fire acts by means of its heat.²⁴⁷

And, in article two of question seventy-five, he writes,

To operate through itself [*per se*] belongs to what exists through itself [*per se*]. Now, something can be said to be existing through itself whenever it is not inhering, like an accident or material form, even if it is a part. But properly speaking, that is said to subsist through itself which is neither inhering in the aforementioned way, nor is a part. In this

²⁴⁶ Aquinas, *ST*, III, Q. 2, A. 3, Co. [*tantum hypostasis est cui attribuuntur operationes et proprietates naturae, et ea etiam quae ad naturae rationem pertinent in concreto, dicimus enim quod hic homo ratiocinatur; et est risibilis, et est animal rationale. Et hac ratione hic homo dicitur esse suppositum, quia scilicet supponitur his quae ad hominem pertinent, eorum praedicationem recipiens*].

²⁴⁷ Aquinas, *ST*, I, Q. 3, A. 8, Co. [*Quod autem venit in compositionem alicuius, non est primo et per se agens, sed magis compositum, non enim manus agit, sed homo per manum; et ignis calefacit per calorem*].

way, an eye or a hand cannot be said to be subsist through itself, and as a result neither can such parts be said to operate through themselves. Hence the operations of the parts are attributed to the whole by means of the parts. For we say that a human being sees by means of his eye, and grasp by means of his hand.²⁴⁸

While Aquinas never explicitly mentions accidental unities in these passages, he does explicitly mention the nature or essence of an individual substance in the third. And, most importantly, in each of these passages Aquinas states a *general* principle that comes very close to my own Unicity and Candidacy Principles outlined above. And these principles would, in virtue of being general, apply to any combination of an individual substance's metaphysical parts that is less than the whole composite. I submit, then, that there are good reasons to think that Aquinas himself espouses an account of property possession that is very similar, if not identical, to that proposed by the alternative model.

Lastly, according to claim 10' of those used to characterize the alternative model of Aquinas's general ontology outlined above, a human person, while, prior to her death, is composed of her substantial form, prime matter, and all of her accidental forms, at death comes to be temporarily composed of her substantial form (her rational soul) and any of her accidental forms that may be carried through to the afterlife. Now, claim 10' distinguishes the alternative model of Aquinas's general ontology from Brower's only if there are in fact accidental forms that may be carried through into the afterlife. If there are no such accidents, then, despite the differences between the two models reflected in their earlier claims, both the alternative model and Brower's model would offer the very same account of Aquinas's view of the afterlife.

²⁴⁸ Aquinas, *ST*, I, Q. 75, A. 2, Ad 2 [*per se agere convenit per se existenti. Sed per se existens quandoque potest dici aliquid si non sit inhaerens ut accidens vel ut forma materialis, etiam si sit pars. Sed proprie et per se subsistens dicitur quod neque est praedicto modo inhaerens, neque est pars. Secundum quem modum oculus aut manus non posset dici per se subsistens; et per consequens nec per se operans. Unde et operationes partium attribuuntur toti per partes. Dicimus enim quod homo videt per oculum, et palpat per manum*].

Fortunately, I think that there are passages that indicate that Aquinas thought that there were accidental forms that could be carried through into the afterlife. For example, in chapter six of *De ente et essentia*, Aquinas explains that there are some accidental forms or accidents that inhere directly in one's rational soul and so do not require any matter for their actualization:

Certain accidents follow principally from the form and certain others from the matter. There are some forms whose existence does not depend on matter, such as the intellectual soul. However, matter does not have existence except through form. Hence, of those accidents which follow from the form, there are some which do not associate with matter, such as understanding, which does not take place through a bodily organ, as the Philosopher proves in Book III of the *De anima*.²⁴⁹

As this passage indicates, Aquinas thinks that a human person's act of understanding makes no use of any of his or her corporeal organs, and so could, in principle, be performed without any matter whatsoever. It follows from this that any accidents related to a human person's act of understanding could thereby be actualized in the absence of his or her prime matter. Later on in the treatise on human nature in the *Summa*, Aquinas gives us some examples of the sorts of accidents that he has in mind here. In question eighty-nine, he explains that certain intelligible species will remain in the separated soul after death, as well as certain habits of knowledge.²⁵⁰ And while there will be a new mode of understanding for the soul when it is separate from its body, this new mode of understanding would also be considered an accident inhering in the separated soul.²⁵¹

The consequences of these observations are as follows. As was argued above, Aquinas seems to hold that accidental forms are further metaphysical parts of individual substances beyond their substantial forms and prime matter. And so, since, as has been argued here, he also

²⁴⁹ Aquinas, *DEE*, Ch. 6 [*quaedam accidentia principaliter consequuntur formam et quaedam materiam. Forma autem invenitur aliqua, cuius esse non dependet ad materiam, ut anima intellectualis; materia vero non habet esse nisi per formam. Unde in accidentibus, quae consequuntur formam, est aliquid, quod non habet communicationem cum materia, sicut est intelligere, quod non est per organum corporale, sicut probat philosophus in III de anima*].

²⁵⁰ Aquinas, *ST*, I, Q. 89, A. 1, Ad. 3; Aquinas, *ST*, I, Q. 89, A. 5, Co.

²⁵¹ Aquinas, *ST*, I, Q. 89, A. 6, Co.

seems to hold that certain accidental forms may be carried through into the afterlife, there is reason to believe that Aquinas thought that human persons, if they do indeed survive into the afterlife, do so by virtue of coming to be composed of their substantial forms along with various accidental forms that may be carried through into the afterlife. As a result, I submit that Aquinas's own account of the post-mortem persistence of human persons is more aptly characterized by 10' than by 10.

In summary, my cumulative case for the claim that the alternative model of Aquinas's general ontology is a better, that is to say, more loyal, interpretation of Aquinas consists in having shown that there are passages from Aquinas's texts that almost explicitly support claims 1', 3', 9' and 10' that were used to characterize the alternative model above. I have not said much here about accidental unities. However, if my interpretive arguments for 1', 3', 9' and 10' have been successful, then this puts a serious strain on Brower's account of these entities. If, as I have argued, accidental forms are indeed metaphysical parts of individual substances, then accidental unities, which are said to include accidental forms among their own metaphysical parts, cannot also be composed of individual substances, as they are on Brower's view. As a result, between the two models considered here, the alternative model's account of accidental unities appears to be the only account of accidental unities that can be reconciled with all of the texts cited above. And I take that to be a significant interpretive advantage of the model.

2.4.2 Philosophical Advantages

2.4.2.1 A More Complex Survivalism

One reason to prefer the alternative model of Aquinas's general ontology to Brower's on philosophical grounds pertains to the way in which human persons are said to survive their deaths on each model. Recall that, on Brower's model, Aquinas holds that a human person is,

prior to her death, composed of both prime matter and a rational soul that serves as her substantial form. At death the rational soul is separated from its matter but the rational soul survives, persisting on its own until its eventual re-acquaintance with that same, or some other suitable matter. Given that prime matter, one of the principal metaphysical parts of the human person, has been lost at death, we might wonder what becomes of the person herself. Is the persistence of the rational soul sufficient for the persistence of the human person whose soul it is? Or is a human person, according to Aquinas, necessarily composed of its two principal metaphysical parts, such that once the matter is lost, she ceases to exist (at least until later being resurrected)?

Recently there has been quite a bit of controversy among scholars of Aquinas on precisely this issue. There are ongoing debates both about what Aquinas does in fact hold with regard to the post-mortem persistence of human persons and about which view is philosophically superior.²⁵² So-called “corruptionists” argue that Aquinas held that, or that there are strong philosophical reasons to hold that, a human person ceases to exist at death upon the separation of her soul from her body, even though the rational soul survives.²⁵³ So-called “survivalists” argue that Aquinas held that, or that there are strong philosophical reasons to hold that, a human person

²⁵² See the discussion in Chapter Thirteen of Brower’s *Aquinas’s Ontology* for a good overview of the relevant debates.

²⁵³ Corruptionists include: Robert Pasnau (*Thomas Aquinas on Human Nature* (New York: Cambridge University Press, 2002): pp. 387-389), Patrick Toner (“Personhood and Death in St. Thomas Aquinas”, *History of Philosophy Quarterly*, Vol. 26, No. 2 (Apr., 2009): pp. 121-138; “St. Thomas Aquinas on Death and the Separated Soul”, *Pacific Philosophical Quarterly*, Vol. 91, No. 4 (Dec., 2010): pp. 587-599; “On Hylemorphism and Personal Identity”, *European Journal of Philosophy*, Vol. 19, No. 3 (Sep., 2011): pp. 454-473; “St. Thomas Aquinas on Punishing Souls”, *International Journal for Philosophy of Religion*, Vol. 71, No. 2 (Apr., 2012): pp. 103-116), Christina van Dyke (“Human Identity, Immanent Causal Relations, and the Principle of Non-Repeatability: Thomas Aquinas on the Bodily Resurrection”, *Religious Studies*, Vol. 43, No. 4 (Dec., 2007): pp. 373-394; “I See Dead People: Disembodied Souls and Aquinas’s ‘Two-Person’ Problem”, in Robert Pasnau (ed.), *Oxford Studies in Medieval Philosophy*, Vol. 2 (2014): pp. 25-45), and Turner Nevitt (“Survivalism, Corruptionism, and Intermittent Existence in Aquinas”, *History of Philosophy Quarterly*, Vol. 31, No. 1 (Jan., 2014): pp. 1-19; “Aquinas on the Death of Christ: A New Argument for Corruptionism”, *American Catholic Philosophical Quarterly*, Vol. 90, No. 1 (Winter, 2016): pp. 77-99; “Annihilation, Re-creation, and Intermittent Existence in Aquinas”, *Proceedings of the Society for Medieval Logic and Metaphysics*, Vol. 13 (2016): forthcoming). For further references to other commentators who are sympathetic to corruptionism, see citations in Nevitt, “Aquinas on the Death of Christ”, p. 78.

survives her death, despite the separation of her soul from her body, by virtue of her soul's persistence.²⁵⁴ Survivalists often hold that while the human person is never numerically identical to her soul, after death a human person comes to be composed or constituted entirely of just her rational soul.²⁵⁵ As evidenced by the tenth claim that was used above to characterize Brower's model, Brower falls squarely in the survivalist camp. Brower holds both that Aquinas was a survivalist, and that survivalism is an independently plausible position to hold.²⁵⁶ Along these lines, according to Brower, a human person survives her death by coming to be composed of only her rational soul.

One problem with the survivalist position is that it forces its proponent to reject one of the fundamental axioms of classical mereology known as the "Weak-Supplementation Principle".²⁵⁷ According to the Weak-Supplementation Principle, any composite whole must have more than one proper part at any time that it exists. The intuition here is that if a composite whole has just one proper part, then there is a strong inclination to regard the whole as nothing more than that part and so not a composite at all. Indeed, we might ask, if a composite whole has

²⁵⁴ Survivalists include: Eleonore Stump (*Aquinas*, pp. 51-54; "Resurrection, Reassembly, and Reconstitution"; "Resurrection and the Separated Soul", in Brian Davies and Eleonore Stump (eds.), *The Oxford Handbook of Aquinas* (Oxford: Oxford University Press, 2012): pp. 458-466), Jason T. Eberl ("The Metaphysics of Resurrection: Issues of Identity in Aquinas", *Proceedings of the American Catholic Philosophical Association*, Vol. 74 (2001): pp. 215-230; "Do Human Persons Persist Between Death and Resurrection?" in Kevin Timpe (ed.), *Metaphysics and God: Essays in Honor of Eleonore Stump* (New York: Routledge, 2009): pp. 188-205), Christopher M. Brown (*Aquinas and the Ship of Theseus*, pp. 78-79; "Souls, Ships and Substance: A Response to Toner", *American Catholic Philosophical Quarterly*, Vol. 81, No. 4 (Fall, 2007): pp. 655-668), and David Oderberg (*Real Essentialism*, pp. 255-260; "Survivalism, Corruptionism, and Mereology", *European Journal for Philosophy of Religion*, Vol. 4, No. 4 (Winter, 2012): pp. 1-26). For further references to other commentators who are sympathetic to survivalism, see citations in Toner, "Punishing Souls", pp. 103-104.

²⁵⁵ Eberl and Brown describe the human person as being "composed" of her rational soul in the interim, whereas Stump and Oderberg describe the human person as being "constituted" by it (see citations in the previous footnote).

²⁵⁶ Though Brower is keen to distinguish his view from both corruptionism (or "cessationism" as he calls it) and survivalism, he ultimately defends a variant of survivalism that he calls "non-human survivalism". According to Brower, a human person, *qua* person, survives her death, but not *qua* human being (see, Brower, *Aquinas's Ontology*, pp. 297-301).

²⁵⁷ For more on the role of the Weak-Supplementation Principle in Classical Extensional Mereology, see Peter M. Simons, *Parts: A Study in Ontology* (Oxford: Clarendon Press, 1987). Notably, the Weak-Supplementation Principle also plays a key role in Kathrin Koslicki's defense of her "mereological solution" to the Grounding Problem (see Koslicki, *The Structure of Objects*, pp. 179-183).

only one proper part, what distinguishes the whole from its part? On Brower's account of the afterlife, after death and before resurrection, a human person, a composite whole, is said to have only one proper part – her rational soul. It is clear, then, that Brower's account of Aquinas's view of the afterlife forces us to reject, and to interpret Aquinas as rejecting, the Weak-Supplementation Principle.

Patrick Toner, who has done the most work to try to defend the corruptionist view, and from whom I have drawn the present objection to survivalism, in one of his key contributions to the debate, cites various passages from Aquinas's corpus that appear to show that Aquinas himself held something like the Weak-Supplementation Principle.²⁵⁸ The conclusion that Toner draws from such passages is that Aquinas cannot, as a result, be interpreted as holding the survivalist view. Now, whether or not Toner is right in his interpretation of Aquinas, the Weak-Supplementation Principle is an intuitively plausible principle. Some have even argued that our very notions of part and whole depend on it - that it is part of the meaning of 'whole' that a whole be something composed of at least two proper parts.²⁵⁹ Toward the end of his book, Brower acknowledges this sort of worry for his account. In his defense, he cites other analytic philosophers who have recently presented various reasons for rejecting the Weak-Supplementation Principle.²⁶⁰ Now, it should be granted that the status of the Weak-

²⁵⁸ Toner, "On Hylemorphism", pp. 456-459. To my knowledge, Toner is the first person to pose this sort of objection to survivalists.

²⁵⁹ As Simons puts it, "[H]ow could an individual have a single proper part? That goes against what we mean by 'part.' An individual which has a proper part needs other parts in addition to *supplement* this one to obtain the whole" (Simons, *Parts*, p. 26; quoted in Toner, "On Hylemorphism", p. 456). For other authors who hold that the Weak-Supplementation Principle is a necessary truth, or something like a necessary truth, see the citations in A. J. Cotnoir, "Strange Parts: The Metaphysics of Non-classical Mereologies", *Philosophy Compass*, Vol. 8, No. 9 (Sep., 2013): p. 843, fn15.

²⁶⁰ Brower, *Aquinas's Ontology*, p. 309. Brower cites Maureen Donnelly, "Using Mereological Principles to Support Metaphysics", *Philosophical Quarterly*, Vol. 61, No. 243 (Apr., 2011): pp. 225-246; Kit Fine, "Things and Their Parts", *Midwest Studies in Philosophy*, Vol. 23, No. 1 (1999): pp. 61-74; and Donald Smith, "Mereology without Weak Supplementation", *Australasian Journal of Philosophy*, Vol. 87, No. 3 (Jul., 2009): pp. 505-511. For other authors who reject the Weak-Supplementation Principle, or otherwise give reasons for rejecting it, see, for example, Oderberg, "Survivalism", as well as the citations in Cotnoir, "Strange Parts", p. 843, fn16.

Supplementation Principle is far from settled. But we might at least say that having to reject the Weak-Supplementation Principle, and having to interpret Aquinas as rejecting it, is something of a cost for Brower's view.²⁶¹ If there were an alternative model of Aquinas's general ontology available that did not commit Aquinas to such a controversial position, then, all other things being equal, we should prefer that one on philosophical grounds alone.

I submit that the alternative model of Aquinas's general ontology outlined above is one such model. Recall that, on the alternative model, a human person is not exhaustively composed of just her prime matter and her substantial form. Rather, at any time that she exists, a human person is composed of prime matter, a substantial form, and all of the accidental forms that characterize her at that time. It follows from this that if a human person loses her matter at death, she need not thereby come to be composed of only her substantial form. If there are accidents that have the soul as their subject, and so can be carried through into the afterlife, then a human person can survive her death by coming to be composed of her substantial form and all of those accidents. At no point, not even in the afterlife, would we have to say that a human person has only one metaphysical part.²⁶² Hence, on the alternative model, Aquinas need not be interpreted as rejecting the Weak-Supplementation Principle. Even granting that the Weak-Supplementation

²⁶¹ Thomas Ward also recognizes this cost of Brower's view in his "Reconstructing Aquinas's World: Themes from Brower", Robert Pasnau (ed.), *Oxford Studies in Medieval Philosophy*, Vol. 4 (forthcoming).

²⁶² For other survivalist accounts of the afterlife that deny that a human person is solely composed of her rational soul in the interim state, see, for example: Mark K. Spencer, "The Personhood of the Separated Soul", *Nova et Vetera*, Vol. 12, No. 3 (Summer, 2014): pp. 863-912; Thomas M. Ward, "Transhumanization, Personal Identity, and the Afterlife: Thomistic Reflections on a Dantean Theme", *New Blackfriars*, Vol. 96, No. 1065 (May, 2015): pp. 564-575. For Spencer, in the interim state, the human person possesses, beyond her rational soul, her "mode of subsistence" and her "act of existence" (p. 905), though, according to Spencer, it is misleading to describe these principles as further *parts* of the human person (p. 907). For Ward, in the interim state, the human person may indeed have further *parts* beyond her rational soul. According to Ward, a human person may come to possess God as a part (!), or, less controversially, may come to possess, as a part, some element of God's grace, energy, or action (pp. 573-574).

Principle is controversial, that the alternative model does not commit us or Aquinas to its rejection is, I think, a distinct philosophical advantage of that model over Brower's.²⁶³

2.4.2.2 Getting Our Priorities Straight

A second reason to prefer the alternative model of Aquinas's general ontology to Brower's on philosophical grounds pertains to the way in which material substances are said to possess their properties on each model. Recall that, according to Brower's model of Aquinas's general ontology, for Aquinas, a material substance is composed of prime matter and a substantial form, and an accidental unity is composed of a material substance and an accidental form. Any particular material substance, then, (say, Socrates) is said to underlie various accidents or accidental forms (such as whiteness or justness) and is thus a proper part of various accidental unities (white-Socrates, just-Socrates, etc.), which have those accidents as proper parts. Moreover, the relationship between Socrates and any one of his accidental unities is, according to Brower, one of Numerical Sameness Without Identity: Socrates and white-Socrates are numerically the same in virtue of sharing the same matter, but numerically distinct in virtue of having distinct formal parts.

²⁶³ In order to uphold the weak-supplementation principle for *all* composite entities, however, the alternative model will have to say that, at death, a human person loses her essence or nature. This is so because, on the alternative model, a human person's essence is composed of her substantial form and her prime matter. With the loss of her prime matter, the only thing left of a human person's essence is her substantial form, and to say that the persistence of a human person's rational soul is sufficient for the continued existence of her essence would be to reject the weak-supplementation principle for composite essences. (I thank Jeff Brower for bringing this objection to my attention.) Although it sounds strange to say that a human person might outlive her essence, I think that this is mitigated by the fact that, in the interim state, a human person maintains possession of her rational soul, which, when it was a part of the human person's essence, provided almost all of the "content" of that essence. Importantly, the essential "content" packed into a substantial form ensures that as long as a human person maintains possession of that form she can only ever have a human essence, when she does have one. Possession of a rational soul also ensures that the human person continues to possess all of the essential properties that are characteristic of human beings, even if, strictly speaking, she does not continue to possess a composite human essence. I plan to address this issue in more detail in future work.

Accompanying his thesis of Numerical Sameness Without Identity is Brower's sophisticated account of property-predication. Consider once again the following passage from Chapter 4 of *Aquinas's Ontology of the Material World*:

[S]ubjects are characterized, primarily or in the first instance, by the forms (or properties) that they possess as proper parts or constituents—or better, as immediate proper parts or constituents... In addition to such primary property characterization, however, the doctrine of numerical sameness without identity enables us to say that subjects are also characterized in a secondary or derivative sense by the constituent properties of things with which they are numerically the same but not identical. The intuitive idea here is that numerical sameness is such an intimate relation that, by virtue of coming to bear it to something else, a compound can take on or inherit certain characteristics of that other thing. Thus, even if it is true that only statues or spheres can be characterized by statuehood or sphericity primarily or simpliciter, since only they possess the relevant properties as immediate proper parts or constituents, nonetheless when a lump of bronze comes to share the same matter as a statue or sphere (which it can do merely by having statuehood or sphericity come to inhere in it), it will thereby come to be characterized by the relevant property derivatively.²⁶⁴

As indicated here, according to Brower, all of the properties that inhere in, and thus contingently characterize, a material substance are primarily possessed by the various accidental unities of which that material substance is a part, and only derivatively possessed by the substance itself. For example, if Socrates comes to be contingently characterized by the quality of whiteness, what possesses that whiteness “in the first instance” is white-Socrates, an accidental unity.

This much of Brower's account of property-possession might, at first glance, seem rather harmless. But consider the fact that individual thoughts, such as “I hope that it will rain”, are accidents: there is some accidental form (probably one in the category of ‘action’) that inheres in Socrates whenever he hopes that it will rain. And when Socrates thinks “I hope that it will rain”, the primary possessor of that thought is not Socrates, but the accidental unity, “hoping-that-it-will-rain-Socrates”. Now, as the passage above indicates, according to Brower, any entity that possesses a property in the primary sense is also *characterized* by that property in the primary

²⁶⁴ Brower, *Aquinas's Ontology*, pp. 94-95.

sense. We might also suggest further that any entity that is characterized primarily by some action or some thought, is, in some sense, the primary *performer* of that action, the primary *thinker* of that thought.²⁶⁵ If this much is true, then it would seem to follow that, in the example above, on Brower's account, hoping-that-it-will-rain-Socrates is the primary thinker of Socrates' thought, not Socrates. And the same would be said for all of the thoughts that Socrates has, and for any thought that any human being has. According to Brower's model of Aquinas's ontology of material objects, no human being, *qua* material substance, is ever, or could ever be, the primary thinker of his or her own thoughts.

As Andrew Bailey has recently pointed out, this implication of Brower's model of Aquinas's general ontology has the further result that the model must violate an intuitively plausible psychological principle that Bailey himself dubs the "Priority Principle".²⁶⁶ According to Bailey's "Priority Principle", "We human persons have mental properties (like hoping for rain) in the primary and nonderivative sense. We think our thoughts in the primary and

²⁶⁵ Brower never goes so far as to say that an accidental unity is the primary *agent* in such cases. And so it is at least open to him to deny this further premise by stipulating that only substances are of the right ontological category to be agents, or more specifically, to think thoughts. This would be similar to the way in which the alternative model stipulated above that only individual substances are of the right ontological category to possess or be characterized by any accidental form. But in the passage included here Brower does explicitly say that the accidental unity is the primary possessor of the relevant accident and is, as a result, characterized by that accident in the primary sense. And so an accidental unity is certainly of the right ontological category to possess and be characterized by an accident in the category of action on his view. What, then, prevents it from acting? It has all of the same metaphysical constituents as the underlying substance, plus one. And so if the substance can act, it would seem that the accidental unity could too. Could Brower admit that the accidental unity is an agent, then, but stipulate that the underlying substance is the primary agent in such cases? I, for one, do not see how an underlying substance could be the primary agent with respect to some particular accident in the category of action even though it is neither the primary possessor of that action nor that which is characterized by it in the primary sense. As a result, I think it would be difficult for Brower to reject the further premise that I have introduced here, given what he says elsewhere.

²⁶⁶ Andrew M. Bailey, "The Priority Principle", *Journal of the American Philosophical Association*, Vol. 1, No. 1 (Mar., 2015): pp. 163-174. In his article, Bailey himself includes Brower's hylomorphic account of material substances in his survey of views of human persons that violate the Priority Principle (see *Ibid.*, pp. 170-171). Other views of human persons that Bailey targets include the "Thinking Parts" view, Union Dualism, and Constitutionalism. The "priority objection" to Brower's model outlined here, then, is not new. What is new is my suggestion that there is a version of Thomistic hylomorphism that has the resources to avoid such an objection, which is precisely what I argue below.

nonderivative sense.”²⁶⁷ Given Brower’s account of property-possession described above, it is clear that on his view, the priority principle must be rejected. For, when Socrates thinks (or hopes) that it will rain, he thinks (or hopes) in the derivative sense: he thinks (or hopes) that it will rain by virtue of being a proper part of the accidental unity ‘hoping-that-it-will-rain-Socrates’, which possesses the relevant thought and so thinks that thought in the primary sense.

But why think that the Priority Principle is true? In his article, Bailey gives two sorts of reasons. First, the principle is said to have strong intuitive support. Here Bailey enlists the help of Roderick Chisholm. Says Chisholm:

There is no reason whatever for supposing that I hope for rain only in virtue of the fact that some other thing hopes for rain – some stand-in that, strictly and philosophically, is not identical with me but happens to be doing duty for me at this particular moment...If there are thus two things that now hope for rain, the one doing it on its own and the other such that its hoping is done for it by the thing that now happens to constitute it, then I am the former thing and not the latter thing.²⁶⁸

The main argument that Bailey gives in support of the Priority Principle, however, is this: If I, a human person, am merely a secondary or derivative thinker of my thoughts, then it follows that some other thing is the primary, non-derivative thinker of those thoughts. As a result, if I, a human person, am merely a secondary or derivative thinker of my thoughts, then there are actually two things (and maybe more) that can be said to think each of my thoughts: me, the derivative thinker, and that other thing that thinks my thoughts in the non-derivative sense. But surely that is too many thinkers! According to Bailey, then, any view that violates the Priority Principle has a problem of too many thinkers.

Now, no doubt many of Bailey’s claims here are controversial. But the Priority Principle does seem intuitively plausible, and the multiplication of thinkers that its rejection introduces

²⁶⁷ *Ibid.*, 165.

²⁶⁸ Roderick Chisholm, *Person and Object: A Metaphysical Study* (London: Open Court, 1976): p. 104, quoted in Bailey, “Priority Principle”, p. 165.

does seem intuitively problematic. If there were an alternative model of Aquinas's general ontology available that did not commit Aquinas to the rejection of the Priority Principle, then, all other things being equal, we should prefer that one on philosophical grounds.

And, once again, I submit that the alternative model of Aquinas's general ontology outlined above is one such model. Recall that, on the alternative model, all of the accidental forms that characterize any particular substance at any time are proper parts of that same individual substance at that time. As a result, accidental unities are not composite wholes of which individual substances are parts. Rather, accidental unities are parts of the composite wholes that are individual substances. White-Socrates, for example, is the part of Socrates that includes his substantial form, his prime matter, and his accidental form of whiteness and excludes all of the other accidental forms that characterize him at that time. Earlier I argued that, according to the alternative model's account of property possession, no proper part of an individual substance is a subject of predication; any and all of the accidental characterizations of any and all of the parts are attributed to the whole that is the individual substance. In the case of accidental forms that fall under the category of action, we can reformulate this thesis as follows: no proper part of an individual substance is an agent; it is the individual substance that acts through or by means of its parts. Now, since, on the alternative model, white-Socrates, *qua* accidental unity, is a part of the individual substance that is Socrates, it follows that neither it, nor any other accidental unity, is a subject of predication; any and all of the accidental characterizations that any of his accidental unities have as parts are attributed to Socrates and Socrates alone. In the case of accidental forms falling under the category of action, Socrates may in some sense act through or by means of one of his accidental unities, similar to the way in

which he may be said to act through or by means of one his functional or spatial parts,²⁶⁹ but it is always Socrates, strictly speaking, that acts.

In this way, the alternative model of Aquinas's general ontology outlined above allows us to preserve Bailey's Priority Principle. For, according to the alternative model, none of the parts of Socrates can be said to be characterized by any of his properties or perform any of his actions. Moreover, Socrates himself, *qua* individual substance, is, by definition, not a part of any other entity that can be said to be characterized by his properties or perform his actions. As a result, Socrates is the only relevant candidate for the subject of his properties, the only relevant candidate for the agent of his actions, and, in particular, the only relevant candidate for the thinker of his thought, "I hope that it will rain". And, moreover, by virtue of being the only subject of his properties, the only agent of his actions, and, in particular, the only thinker of his thoughts, Socrates is thereby the primary subject of his properties, the primary agent of his actions, and, in particular, the primary thinker of his thoughts. On the alternative model of Aquinas's general ontology, then, Bailey's Priority Principle is vindicated. Even granting that the Priority Principle is controversial, it does have some intuitive pull. And so, the fact that the alternative model allows us to preserve it is, I think, a distinct philosophical advantage of that model over Brower's.

In summary, I think that the alternative model of Aquinas's general ontology outlined above avoids two sorts of concerns for Brower's. First, the alternative model does not force us to reject the Weak-Supplementation Principle, as Brower's model does. And so a proponent of the

²⁶⁹ I think that anyone who holds that each of us is identical to a human organism is going to have to make use of something like this strategy in order to avoid having to say that it is the brain that is the primary thinker of each of our thoughts (unless he or she is willing to deny the existence such parts). For example, he or she will have to say that the animal thinks through or by means of her brain, but that it is always the whole human animal, strictly speaking, that thinks. Bailey himself pursues something like this strategy in his "You Needn't Be Simple". *Philosophical Papers*, Vol. 43, No. 2 (Jul., 2014): pp. 145-160.

alternative can say that a composite whole *does* necessarily have at least two proper parts. Second, the alternative model does not force us to reject the Priority Principle, as Brower's model does. And so a proponent of the alternative can say that human persons *do* think their thoughts in the primary, non-derivative sense. Now, in demonstrating that Brower's model is forced to reject, and forced to interpret Aquinas as rejecting, both of these intuitively plausible principles, I do not pretend to have presented a knock-down argument against the view. There may be some theoretical virtues of Brower's model that are not shared by the alternative.²⁷⁰ But I hope that the foregoing has at least revealed some significant costs of Brower's model. And I think that that gives us some *philosophical* reasons, independent of the interpretive reasons introduced in the previous section, to prefer the alternative.

²⁷⁰ For instance, given that the alternative model rejects Brower's account of accidental unities, it might have to provide some other solution to the "Problem of Temporary Intrinsic" (see Brower, *Aquinas's Ontology*, pp. 174-184; Jeffrey E. Brower, "Aristotelian Endurantism: A New Solution to the Problem of Temporary Intrinsic", *Mind*, Vol. 119, No. 476 (Oct., 2010): pp. 883-905).

CHAPTER 3: AQUINAS ON SUBSTANTIAL FORM

3.1 Introduction: Form Fragments

From the discussions of structural hylomorphism in Chapter 1 and Aquinas's general ontology in Chapter 2, a few conclusions can already be drawn about Aquinas's views on substantial form. We know that, for Aquinas, substantial form is one of the principal metaphysical parts of an individual substance, that substantial form inheres in prime matter, and that the substantial form of any individual substance is a particular rather than a universal. We also know that substantial form is a certain kind of act or actuality, but that it is also to be distinguished from the sort of act or actuality that an accidental form is. For living things, we know that their substantial forms are called 'souls', and that, for human persons, their substantial forms are called 'rational souls'. We also briefly considered some of the functional roles that substantial form is posited in order to fill: the possession of a substantial form is what makes something a substance, the possession of a certain kind of substantial form is what makes something a substance of a certain species, and the possession of the very same substantial form is what makes something the very same substance over time.

But there is much more that can be said about Aquinas's conception of substantial form. For instance, there is much more that can be said about a substantial form's role with regard to the identity of an individual substance over time, and with regard to its role as kind-specifier. And there are other functional roles that substantial form serves in Aquinas's ontology. Moreover, throughout his works, Aquinas offers various analogies, the aim of which is to reveal something about the nature of substantial form and its relationship with matter. And there are a few instances in which we learn more about Aquinas's conception of substantial form from the ways in which he contrasts substantial form with members of the other categories in his

ontology. The goal of this chapter, then, is to systematically assemble Aquinas's views on substantial form from all of the things that he says about it in all of his works. In sections 3.2-3.5, I will investigate the various functional roles that substantial form plays in Aquinas ontology, as well as a few of the positive features that a substantial form can be said to have as a result of its occupation of those roles. In section 3.6, I will consider the various analogies that Aquinas uses to further elucidate the nature of substantial form. In section 3.7, I will outline the various entities in Aquinas's ontology with which a substantial form is *not* to be identified, as well as the implications of these denials for contemporary approaches to form. Finally, in section 3.8, I will review the material presented in this chapter and attempt to motivate the need for a further exploration into the nature of substantial form - one that goes beyond the texts themselves but still preserves the insights found in the work of Aquinas.

3.2 Three Fundamental Roles: Existence, Unity, Identity

Certain other members of Aquinas's ontology are said to "receive" their existence from a substantial form, to have existence "by means of" a substantial form, or to be such that their existence "depends" on the existence of a substantial form.²⁷¹ The substantial form, in turn, is said to "give" such things their existence, to be the "cause" of their existence, or to make it *that* those things exist. In Aquinas's ontology, then, a substantial form serves as an "existence-giver". Now, the sort of existence that a substantial form can be said to give to a thing is characterized by Aquinas in various ways. A substantial form is said to give a thing its "actual existence",²⁷² its "substantial existence",²⁷³ and its "absolute existence" or "existence *simpliciter*"²⁷⁴. Importantly,

²⁷¹ For particular examples, see citations below.

²⁷² See, for example: Aquinas, *DPN*, Ch. 4; Aquinas, *ST*, Q. 75, A. 6, Co.; Aquinas, *ST*, I, Q. 76, A. 6, Co.; Aquinas, *ST*, I, Q. 76, A. 7, Co.; Aquinas, *In Met.*, B. 5, L. 2, 775; Aquinas, *QDSC*, Q. 1, A. 1, Ad. 9; Aquinas, *QQ*, I, Q. 4, A. 1, S.C.

²⁷³ See, for example: Aquinas, *DPN*, Ch. 1; Aquinas, *ST*, I, Q. 76, A. 4, S.C.; Aquinas, *SCG*, II, Ch. 68, N. 3; Aquinas, *In DA*, B. 2, L. 1, 224; Aquinas, *QDSC*, Q. 1, A. 4, Co.

according to Aquinas, there is also more than one kind of thing that receives this sort of existence from a substantial form. As will be shown below, Aquinas holds that a substantial form gives “absolute existence” or “existence *simpliciter*” to (1) the prime matter in which it inheres, (2) the individual substance of which it is a metaphysical part, (3) the physical or quantitative parts of the material substance that it informs, and even, in some sense, (4) the accidents that inhere in the form/matter composite.

With regard to the first of these “existence transactions”, in Question 75, Article 6 of the *Prima pars*, Aquinas writes that “[e]xistence belongs to a form, which is an act, through itself. Hence, matter acquires actual existence as it acquires a form.”²⁷⁵ In Question 76, Article 6, he makes a similar point, specifying that the sort of form that he has in mind here is a substantial form: “Matter has actual existence through a substantial form, which makes it to exist absolutely [*esse simpliciter*].”²⁷⁶ Elsewhere Aquinas states that “form is the cause of matter, inasmuch as matter does not have actual existence except through form,”²⁷⁷ and that “substantial form gives absolute existence [*esse simpliciter*] to matter.”²⁷⁸ And so while prime matter is, in itself, pure potentiality, completely lacking in actual existence, I think that these passages are sufficient evidence to attribute to Aquinas the view that any actual or absolute existence that prime matter may be said to enjoy is given to it by a substantial form.²⁷⁹

²⁷⁴ See, for example: Aquinas, *ST*, I, Q. 76, A. 4, Co.; Aquinas, *ST*, I, Q. 76, A. 6, Co.; Aquinas, *ST*, I, Q. 77, A. 6, Co.; Aquinas, *In DA*, B. 2, L. 1, 224; Aquinas, *In Met.*, B. 5, L. 2, 775; Aquinas, *QDPD*, Q. 3, A. 9, Ad. 9; Aquinas, *QDSC*, Q. 1, A. 1, Ad. 9; Aquinas, *CT*, I, 90; Aquinas, *CT*, I, 154; Aquinas, *QDA*, Q. 1, A. 9, Co.; Aquinas, *QQ*, I, Q. 4, A. 1, S.C.

²⁷⁵ Aquinas, *ST*, I, Q. 75, A. 6, Co. [*Esse autem per se convenit formae, quae est actus. Unde materia secundum hoc acquirit esse in actu, quod acquirit formam*].

²⁷⁶ Aquinas, *ST*, I, Q. 76, A. 6, Co. [*Esse autem in actu habet per formam substantialem, quae facit esse simpliciter*].

²⁷⁷ Aquinas, *DPN*, Ch. 4 [*forma est causa materiae, inquantum materia non habet esse in actu nisi per formam*].

²⁷⁸ Aquinas, *In Met.*, B. 5, L. 2, 775 [*forma substantialis dat esse materiae simpliciter*].

²⁷⁹ See also: Aquinas, *DEE*, Ch. 4; Aquinas, *DPN*, Ch. 4; Aquinas, *QDSC*, Q. 1, A. 1, Ad. 6; Aquinas, *QDA*, Q. 1, A. 9, Co.

With regard to individual substances, Aquinas explains in various passages that one of the main differences between a substantial form and an accidental form is precisely that the former gives an individual substance its “absolute” or “substantial” existence, its “existence *simpliciter*”, whereas the latter merely modifies the existence that an individual substance already has. In his *Commentary on Aristotle’s De anima*, for example, he says,

The difference between a substantial form and an accidental form is that an accidental form does not make a thing to be absolutely, but to be in this or that way, for example to be of a certain quantity or to be white or something else of this sort. A substantial form, however, makes a thing to be absolutely.²⁸⁰

Elsewhere Aquinas explains that a substantial form is, by definition, that which makes something a substance, precisely because it is that which gives it its substantial existence: “substantial form makes a thing to be not only in a certain respect, but absolutely [*simpliciter*], and places a thing in the genus of substance.”²⁸¹

Moreover, in Aquinas’s ontology, a substantial form gives existence not only to the matter in which it inheres and the individual substance of which it is a part, but also to the physical or quantitative parts of the material substance that it enforms. The clearest expression of Aquinas’s commitment to this claim is found in Article 8, Question 76 of the *Prima pars*. Here he states that

The substantial form is the perfection not only of the whole, but of each the parts. For, since a whole consists of parts, a form of the whole which does not give existence to the individual parts of the body is a form of composition and order, like the form of a house,

²⁸⁰ Aquinas, *In DA*, B. 2, L. 1, 224 [*haec est differentia formae substantialis ad formam accidentalem, quod forma accidentalis non facit ens actu simpliciter, sed ens actu tale vel tantum, utputa magnum vel album vel aliquid aliud huiusmodi. Forma autem substantialis facit esse actu simpliciter*]. See also: Aquinas, *ST*, I, Q. 76, A. 4, Co.; Aquinas, *ST*, I, Q. 77, A. 6, Co.; Aquinas, *QDSC*, Q. 1, A. 1, Ad. 9; Aquinas, *CT*, B. 1, 90; Aquinas, *CT*, B. 1, 154; Aquinas, *DPN*, Ch. 1.

²⁸¹ Aquinas, *QDPD*, Q. 3, A. 9, Ad. 9 [*forma substantialis faciat esse non solum secundum quid, sed simpliciter, et constituat hoc aliquid in genere substantiae*]. See also, Aquinas, *QDA*, Q. 1, A. 9, Co.; Aquinas, *SCG*, II, C. 58, N. 6.

and such a form is an accidental form. But the soul is a substantial form. Hence, it must be the form and actuality of not only the whole but of each of the parts.²⁸²

And, speaking of the soul as substantial form in his *Quaestiones disputatae de anima*, he explains that “from the fact that the soul gives the body its existence, it also follows that it immediately gives all of the parts of the body their substantial and specific existence.”²⁸³ Note that in these passages Aquinas emphasizes that it is *each* or *all* of the parts of a material substance that receive their existence from their substantial form. In other words, there is no part of a material substance that does not receive its existence from that source.

There are also passages that suggest that, on Aquinas’s view, the existence of each of the accidents that inhere in the form/matter composite is dependent on the existence of the composite’s substantial form. In his *De ente et essentia*, for example, Aquinas states that “[accidents] have an incomplete definition, because they cannot be defined unless a subject is placed in their definition. And this is so because they do not have existence in themselves apart from a subject.”²⁸⁴ In Article 6 of Question 77 of the *Prima pars*, he states that “the actuality found in the subject of an accidental form is prior to that found in the accidental form. Hence, the actuality of the accidental form is caused by the actuality of the subject.”²⁸⁵ And later on in the *Tertia pars* he puts it this way: “The action of an accidental form depends on the action of the substantial form, just as the existence of an accidental form depends on the existence of the

²⁸² Aquinas, *ST*, I, Q. 76, A. 8, Co. [*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*]. I say more about this particular passage in sections 3.3 and 3.7 below.

²⁸³ Aquinas, *QDA*, Q. 1, A. 9, Co. [*secundum quod dat esse corpori, immediate dat esse substantiale et specificum omnibus partibus corporis*]. See also: Aquinas, *QDA*, Q. 1, A. 6, Co.; Aquinas, *QDSC*, Q. 1, A. 4, Co.; Aquinas, *QDA*, Q. 1, A. 10, Co.

²⁸⁴ Aquinas, *DEE*, Ch. 6 [*Diffinitionem autem habent incompletam, quia non possunt diffiniri, nisi ponatur subiectum in eorum diffinitione. Et hoc ideo est, quia non habent per se esse, absolutum a subiecto*].

²⁸⁵ Aquinas, *ST*, I, Q. 77, A. 6, Co. [*actualitas per prius invenitur in subiecto formae accidentalis, quam in forma accidentali, unde actualitas formae accidentalis causatur ab actualitate subiecti*].

substantial form.”²⁸⁶ Now, in the first two of these passages Aquinas makes the connection between the existence, being, or actuality of an accident and the existence, being, or actuality of a subject or substance, not a substantial form. But, as we have already seen, the existence, being, or actuality of a substance is given to it by its substantial form. Assuming, then, that the “gives-being” relation is transitive (much like the relation of metaphysical grounding discussed below), it follows that these passages also support the conclusion that, on Aquinas’s view, substantial form gives being or existence to accidents.

Thus far I have outlined the various ways in which substantial form can be said to give existence to certain other members of Aquinas’s ontology. But what does this “existence-giving” feature of substantial form amount to? And what does it tell us about the nature of substantial form? Perhaps the tools of contemporary metaphysics can be of some assistance here. As it turns out, there are a number of contemporary notions that we could bring in to help us understand the existence-giving role of substantial form. There are ongoing discussions in contemporary metaphysics concerning notions such as ontological dependence, ontological priority, fundamentality, and metaphysical grounding.²⁸⁷ Here I would like to try to get a better sense of

²⁸⁶ Aquinas, *ST*, III, Q. 77, A. 3, Ad. 2 [*actio formae accidentalis dependet ab actione formae substantialis, sicut esse accidentis dependet ab esse substantiae*]. See also: Aquinas, *QDA*, Q. 1, A.12 Ad. 5; Aquinas, *QDVC*, Q. 1, A. 3, Co. For more on the causal relationship between a substance and its accidents, see John Wippel, *The Metaphysical Thought of Thomas Aquinas* (Washington, D.C.: Catholic University of America Press, 2000): pp. 266-274.

²⁸⁷ For some helpful discussions of ontological dependence, see, for example: E. J. Lowe and Tuomas Tahko, “Ontological Dependence”, in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, Spring 2015 Edition, available at: <http://plato.stanford.edu/archives/spr2015/entries/dependence-ontological/>; Fabrice Correia, “Ontological Dependence”, *Philosophy Compass*, Vol. 3, No. 5 (Sep., 2008): pp. 1013-1032; Kit Fine, “Ontological Dependence”, *Proceedings of the Aristotelian Society*, Vol. 95 (1994): pp. 269–290; Phil Corkum, “Aristotle on Ontological Dependence”, *Phronesis*, Vol. 53, No. 1 (2008): pp. 65-92; Kathrin Koslicki, “Varieties of Ontological Dependence”, in Fabrice Correia and Benjamin Schnieder (eds.), *Metaphysical Grounding: Understanding the Structure of Reality* (Cambridge: Cambridge University Press, 2012): pp. 186-213; Kathrin Koslicki, “Ontological Dependence: An Opinionated Survey”, in Miguel Hoeltje, Benjamin Schnieder, and Alex Steinberg (eds.), *Varieties of Dependence* (Frankfurt: Philosophia Verlag, 2013): pp. 31-64. See also the other essays in the Hoeltje, Schnieder and Steinberg volume. For more on ontological priority, which is just the flip-side of ontological dependence, see, for example: Jonathan Schaffer, “Monism: The Priority of the Whole”, *The Philosophical Review*, Vol. 119, No. 1 (Jan., 2010): pp. 31-76; Michail Peramatzis, *Priority in Aristotle’s Metaphysics* (Oxford: Oxford University Press, 2011); Kathrin Koslicki, “The Causal Priority of Form”, *Studia Philosophica Estonica*, Vol. 7, No. 2 (2014): pp. 113-141. For more on fundamentality, see, for example: Jonathan Schaffer, “Is There a Fundamental Level?”, *Noûs*,

what the existence-giving feature of substantial form in Aquinas's ontology amounts to by briefly bringing in the contemporary notion of "metaphysical grounding".²⁸⁸

In contemporary discussions, "metaphysical grounding" refers to a particular kind of relation, or set of relations, that may hold between two or more things. For example, the grounding relation might hold between a certain entity *x*, and some other entity *y*. In such a case it will be said that *x*, grounds, or is the ground for, *y*, and that *y* is grounded in *x* or has *x* as its ground. The grounding relation is typically taken to be a non-causal, explanatory relation: If *x* grounds *y*, then *x* is not the cause of *y*, but nevertheless *x* serves as some sort of non-causal explanation for *y*. However, there are some grounding theorists who argue that grounding is in some important respects very much like a causal relation.²⁸⁹ Grounding is also typically taken to be a "strict partial ordering", that is, the grounding relation is taken to be irreflexive, asymmetric, and transitive. To say that the grounding relation is irreflexive is to say that no *x* is the ground of itself. To say that the grounding relation is asymmetric is to say that if *x* grounds *y*, then *y* does not ground *x*. And to say that the grounding relation is transitive is to say that if *x* grounds *y* and *y* grounds *z*, then *x* grounds *z*. There are some grounding theorists who hold that the grounding

Vol. 37, No. 3 (Sep., 2003): pp. 498-517; Elizabeth Barnes, "Emergence and Fundamentality", *Mind*, Vol. 121, No. 484 (Oct., 2012): pp. 873-901; Ross P. Cameron, "Turtles All the Way Down: Regress, Priority, and Fundamentality", *Philosophical Quarterly*, Vol. 58, No. 230 (Jan., 2008): pp. 1-14. For references concerning metaphysical grounding, see the following footnote, as well as the discussion that follows.

²⁸⁸ For more on metaphysical grounding in general, see, for example: Jonathan Schaffer, "On What Grounds What", in David J. Chalmers, David Manley, and Ryan Wasserman (eds.), *Metametaphysics: New Essays on the Foundations of Ontology* (Oxford: Oxford University Press, 2009): pp. 347-383; Fabrice Correia and Benjamin Schnieder, "Grounding: An Opinionated Introduction", in Fabrice Correia and Benjamin Schnieder (eds.), *Metaphysical Grounding: Understanding the Structure of Reality* (Cambridge: Cambridge University Press, 2012): pp. 1-36; Michael J. Clark and David Higgins, "Recent Work on Grounding", *Analysis*, Vol. 72, No. 4 (Oct., 2012): pp. 812-823; Kelly Trogon, "An Introduction to Grounding", in Miguel Hoeltje, Benjamin Schnieder, and Alex Steinberg (eds.), *Varieties of Dependence* (Frankfurt: Philosophia Verlag, 2013): pp. 97-122; Ricki Bliss and Kelly Trogon, "Metaphysical Grounding", in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, Winter 2014 Edition, available at: <http://plato.stanford.edu/archives/win2014/entries/grounding/>; Michael J. Raven, "Ground", *Philosophy Compass*, Vol. 10, No. 5 (May, 2015): pp. 322-333. See also the other essays in the Correia and Schnieder volume, as well as those in Mark Jago (ed.), *Reality Making* (Oxford: Oxford University Press, 2016).

²⁸⁹ See Jonathan Schaffer, "Grounding in the Image of Causation", *Philosophical Studies*, Vol. 173, No. 1 (Jan., 2016): pp. 49-100. For discussion, see: Kathrin Koslicki, "Where Grounding and Causation Part Ways: Comments on Schaffer", *Philosophical Studies*, Vol. 173, No. 1 (Jan., 2016): pp. 101-112.

relation lacks one or more of these features, but typically it is taken to have all three.²⁹⁰ The relata of a grounding relation are typically taken to be facts. For example, it might be said that the fact that *x* is *a* is grounded in the fact that *x* is *b* or in the fact that *y* is *c*. However, some grounding theorists hold that the notion of metaphysical grounding is neutral with regard to its relata.²⁹¹ According to these metaphysicians, the grounding relation could in principle hold between facts, properties, states of affairs, events, or objects. It could also in principle hold between a member of one of these categories and a member of one of the others, or between any number of members of any number of these categories and any number of members of any of the same or other categories. It is also common in these sorts of discussions to distinguish between full grounding relations and partial grounding relations.²⁹² *x* is a full ground of *y* if *x*, all by itself, grounds *y*. *x* is a partial ground of *y* if both *x* and *z* together ground *y*.

Are, then, Aquinas's claims about the existence-giving role of substantial form best understood as outlining a series of metaphysical grounding relations that hold between a substantial form and certain other members of his ontology? One reason to think that the comparison is *not* apt is that Aquinas regularly uses causal language to describe the way in which a substantial form gives a thing its existence. A substantial form is said to be the *cause* of a thing's existence. But metaphysical grounding is typically taken to be a *non-causal* relation. One way of replying to this worry would be to point to those discussions in the current literature on metaphysical grounding in which it is argued that the grounding relation is in some respects very much like a causal relation.²⁹³ Another way to reply would be to point out that, following Aristotle, Aquinas has a much broader conception of causation than those engaged in current

²⁹⁰ See discussions in Bliss and Trogdon, "Metaphysical Grounding", and Raven, "Ground".

²⁹¹ See, for example: Schaffer, "On What Grounds What", especially pp. 375-376.

²⁹² See, for example, Kit Fine, "Guide to Ground", in Correia and Schnieder, *Metaphysical Grounding*, p. 50.

²⁹³ See citation in fn16 above.

debates about metaphysical grounding. For Aquinas, any suitable answer to the question, “why is x the way that it is?” is a causal explanation. To give an explanation for a state of affairs *just is* to describe its cause. If that much is true, then I do not think that the causal language used by Aquinas to describe the relation that is said to hold between a substantial form and that to which it gives existence is any reason to think that that relation cannot be understood as an instance of metaphysical grounding. I think that when Aquinas speaks of substantial form as giving existence to certain other members of his ontology, he means to say that the existence of the latter entities is grounded in their substantial forms.²⁹⁴

With this as background, I would now like to consider two more fundamental roles that substantial form plays in Aquinas’s ontology. First, for Aquinas, in addition to its role as an “existence-giver”, a substantial form also serves as a “unity-giver”. On Aquinas’s view, the fact that a substantial form gives unity to a thing follows immediately from the fact that it gives existence to that thing. For, as he puts it, “Each thing has unity in the same way that it has being.”²⁹⁵ And so anything that receives its being or existence from a substantial form also receives its unity from the same source.²⁹⁶ Just as a substantial form is said to give “substantial existence”, “absolute existence”, or “existence *simpliciter*”, then, a substantial form is also said to give “absolute unity” or “unity *simpliciter*”²⁹⁷. And, for each of the four categories of things to which a substantial form is said to give members of those categories their existence, so also is a substantial form said to give to those things their unity. That is, a substantial form gives

²⁹⁴ It is worth noting that Schaffer himself draws extensively from Aristotle in his treatment of metaphysical grounding (Schaffer, “On What Grounds What”). And at least one scholar of Aquinas, whose work predates contemporary discussions of metaphysical grounding, uses the term ‘ground’ to characterize certain elements of Aquinas’s ontology (see Joseph Owens, *An Elementary Christian Metaphysics* (Houston, TX: Center for Thomistic Studies, 1985): pp. 181-183.

²⁹⁵ Aquinas, *ST*, I, Q. 76, A. 2, Ad. 2 [*unumquodque hoc modo habet unitatem, quo habet esse*].

²⁹⁶ See, for example: Aquinas, *QQ*, I, Q. 4, A. 1, Co.; Aquinas, *SCG*, II, C. 58, N. 5; Aquinas, *In DA*, B. 2, L. 1, 234; Aquinas, *ST*, I, Q. 76, A. 3, Co.; Aquinas, *ST*, I, Q. 76, A. 7, Co.

²⁹⁷ See, for example: Aquinas, *ST*, I, Q. 76, A. 3, co.; Aquinas, *SCG*, II, Ch. 58, N. 5; Aquinas, *SCG*, II, Ch. 58, N. 6; Aquinas, *QDA*, Q. 1, A. 11, Co.; Aquinas, *QDSC*, Q. 1, A. 3, Co.; Aquinas, *QQ*, I, Q. 4, A. 1, Co.

“absolute unity” or “unity *simpliciter*” to prime matter, the individual substance of which it is a part, the physical or quantitative parts of the material substance that it informs, and the accidents that inhere in the form/matter composite. This is perhaps most clear in the case of the individual substance itself. As Aquinas explains in Article 7 of Question 76 of the *Prima pars*,

Something is one thing in the same way that it is a being. Now, form makes a thing to exist in act through itself, since it is an act through its own essence, and it does not give existence through some medium. Hence the unity of a thing composed of matter and form is through the form itself, which is united to the matter in itself as its act.²⁹⁸

Any “absolute unity” or “unity *simpliciter*” that prime matter, individual substances, quantitative parts, or accidental forms, may be said to enjoy, then, is grounded in their respective substantial forms.

Lastly, for Aquinas, a substantial form also serves as an “identity-giver”. The substantial form of a thing is responsible not only for the fact that that thing has existence, but also for the fact that that thing has existence as the sort of thing that it is. Another way of putting this is to say that a substantial form gives to certain things both their *existence* and their *species*. This is perhaps most clear in the case of individual substances. An individual substance is a member of its kind or species because it has a certain type of substantial form. And members of distinct kinds or species are distinguished from one another by their qualitatively distinct substantial forms. This much is evident from Aquinas’s oft-repeated remarks that “each thing is constituted in its species through its form”²⁹⁹ and that “a difference in species corresponds to a difference in form.”³⁰⁰ Importantly, according to Aquinas, the physical or quantitative parts of an individual substance also receive their species from the individual substance’s substantial form. As the

²⁹⁸ Aquinas, *ST*, I, Q. 76, A. 7, Co. [*aliquid unum, quomodo et ens. Forma autem per seipsam facit rem esse in actu, cum per essentiam suam sit actus; nec dat esse per aliquod medium. Unde unitas rei compositae ex materia et forma est per ipsam formam, quae secundum seipsam unitur materiae ut actus eius*].

²⁹⁹ Aquinas, *ST*, I, Q. 5, A. 5, Co. [*per formam unumquodque in specie constituitur*]. See also: Aquinas, *ST*, Q. 76, A. 1, Co.; Aquinas, *In Met.*, B. 7, L. 11, 1531.

³⁰⁰ Aquinas, *ST*, I, Q. 75, A. 3, Ad. 1 [*differentia autem speciei attenditur secundum differentiam formae*].

quotation above from his disputed question on the soul attests, on Aquinas's view, the substantial form of a living thing "gives all of the parts of the body their substantial and specific existence."³⁰¹ Note that this applies to all of the parts of a body. Every physical or quantitative part of an individual substance is the type of thing that it is because of the relevant substantial form. And so, necessarily, any part removed from the whole, that is to say, any part released from the influence of that whole's substantial form, ceases to be what it was: "Flesh and the other parts of a human being are placed in their species through the soul. Hence, when the soul recedes, there are no bones or flesh except in an equivocal sense."³⁰² Understood in terms of metaphysical grounding, on Aquinas's view, the type-identity of an individual substance and the type-identity of any physical or quantitative parts of that substance are grounded in the individual substance's substantial form.³⁰³

In summary, in Aquinas's ontology, a substantial form serves as the metaphysical ground for four kinds of things: the prime matter in which it inheres, the individual substance of which it is a metaphysical part, the physical or quantitative parts of the material substance that in-forms, and the accidents that inhere in the form/matter composite. Moreover, there are three sorts of facts about each of these things that are grounded in facts about substantial form: facts

³⁰¹ Aquinas, *QDA*, Q. 1, A. 9, Co.

³⁰² Aquinas, *ST*, III, Q. 5, A. 3, Co. [*Caro enim et ceterae partes hominis per animam speciem sortiuntur. Unde, recedente anima, non est os aut caro nisi aequivoce*]. See also: Aquinas, *ST*, I, Q. 76, A. 8, Co.; Aquinas, *In DA*, B. 2, L. 1, 226; Aquinas, *QDA*, Q. 1, A. 1, Co.; Aquinas, *QDA*, Q. 1, A. 9, Co.; Aquinas, *QDA*, Q. 1, A. 10, Co.; Aquinas, *QDSC*, Q. 1, A. 2, Co.; Aquinas, *QDSC*, Q. 1, A. 4, Co.

³⁰³ The relationship between the identity of a substantial form and the identity of the accidents that inhere in the form/matter composite is a bit more complicated. There are at least a handful of passages in which Aquinas explicitly states that an accident does not depend for its species on the substance in which it inheres. He says, for example, that whiteness could exist as whiteness without inhering in a subject (see, for example: Aquinas, *ST*, I, Q. 44, A. 1, Co.; Aquinas, *ST*, I, Q. 75, A. 7, Co.; Aquinas, *QQ*, 7, Q. 4, A. 3, Co.; Aquinas, *QDSC*, A. 8, Ad. 4). However, in those some passages Aquinas also explains that any *particular* accident that inheres in a form/matter composite depends for its identity as *this particular accident* on the substance in which it inheres. And so, while whiteness as such could, in principle, exist without a substance, this particular whiteness could not. What makes this particular whiteness this particular whiteness is precisely that it inheres in this particular form/matter composite. As a result, there is one important sense in which the substantial form of an individual substance does give its accidents their identity, even if, in another sense, those accidents have their own intrinsic character.

about their existence, facts about their unity, and facts about their identity. These three sorts of facts for which substantial form serves as the metaphysical ground, in turn, correspond to the three fundamental roles of substantial form in Aquinas's ontology: substantial form serves as an "existence-giver", a "unity-giver", and an "identity-giver". In the next section of Chapter 3 I will outline the various secondary roles or derivative features that a substantial form may be said to occupy or have in Aquinas's ontology as a result of the roles and features outlined here.

3.3 Secondary Roles, Derivative Features: Unicity, Immediacy, Virtual Presence, Hylomerism

According to Aquinas, each individual substance has one, and only one, substantial form. This important and controversial claim constitutes Aquinas's famous (perhaps even infamous) "Unicity Doctrine".³⁰⁴ Aquinas's Unicity Doctrine applies to all of the individual substances in his ontology: each angel, each human person, each non-human living material substance, and each non-living material substance has just one substantial form. There are at least two sorts of arguments that Aquinas gives for the unicity of substantial form.³⁰⁵ And each of these arguments includes at least one premise that explicitly refers to the fundamental roles of substantial form outlined in the previous section of this chapter. As a result, we might say that Aquinas *derives* the unicity of substantial form from the fundamental roles that it plays in his ontology. In what follows, I would like to consider in more detail Aquinas's Unicity Doctrine, as well as some of

³⁰⁴ For an excellent discussion of Aquinas's Unicity Doctrine, see Wippel, *Metaphysical Thought*, pp. 327-350. It should be noted that Aquinas's claim that each individual substance has one and only one substantial form sets him against most other philosophers in the medieval period. For discussion, see Robert Pasnau, *Metaphysical Themes 1274-1671* (Oxford: Oxford University Press, 2011): pp. 574-578; Thomas M. Ward, *John Duns Scotus on Parts, Wholes, and Hylomorphism* (Leiden: Brill, 2014): pp. 76-109. For contemporary hylomorphic accounts of material objects that reject Aquinas's unicity doctrine, see, for example: Terence L. Nichols, "Aquinas's Concept of Substantial Form and Modern Science", *International Philosophical Quarterly*, Vol. 36, No. 3 (Sep., 1996): pp. 303-318; Gordon P. Barnes, "The Paradoxes of Hylomorphism", *The Review of Metaphysics*, Vol. 56, No. 3 (Mar., 2003): pp. 501-523; Robert C. Koons, "Stalwart vs. Faint-Hearted Hylomorphism: Toward an Aristotelian Account of Composition", *Res Philosophica*, Vol. 91, No. 2 (Apr., 2014): pp. 151-177; Timothy Pawl and Mark K. Spencer, "Christologically Inspired, Empirically Motivated Hylomorphism", *Res Philosophica*, Vol. 93, No. 1 (Jan., 2016): pp. 137-160.

³⁰⁵ For an excellent discussion on the two ways in which Aquinas argues for unicity, see Christopher M. Brown, *Aquinas and the Ship of Theseus* (New York: Continuum, 2005): pp. 85-87.

the other important derivative features that a substantial form may be said to have in his ontology.

Aquinas often argues for the unicity of substantial form from the fact that a substantial form gives an individual substance its “actual existence”, its “existence *simpliciter*”. In his *Compendium theologiae*, for example, Aquinas argues as follows:

If by corporeity is understood substantial form, through which something is placed in the genus of corporeal substance, such corporeity is nothing other than the soul, since there is no such one other than the one substantial form. For this animal is, through this soul, not only an animal but also a living body and a body and even a particular thing existing in the genus of substance. Otherwise, the soul would come to an actually existing body and thus it would be an accidental form. For the subject of a substantial form is not a particular thing actually, but potentially. Accordingly, when it receives a substantial form it is not said to be generated in this or that way, as it is for accidental forms, but it is said to be generated absolutely, as if receiving existence absolutely.³⁰⁶

And in his *Commentary on Aristotle's De anima*, he presents a very similar argument to reach a very similar conclusion:

The difference between a substantial form and an accidental form is that an accidental form does not make a thing to be absolutely, but to be in this or that way, for example to be of a certain quantity or to be white or something else of this sort. A substantial form, however, makes a thing to be absolutely. Hence, an accidental form comes to a subject that already exists in actuality. A substantial form, however, does not come to a subject that already exists in actuality, but to a subject that exists only potentially, namely prime matter. And from this it is clear that it is impossible for there to be many substantial forms in one thing, since the first form would make the thing to be absolutely, and all other forms would come to a subject that already exists in actuality. Hence, they would come to the already existing subject as accidents, and would make the thing to be not absolutely but in a qualified sense.³⁰⁷

³⁰⁶ Aquinas, CT, B. 1, 154 [*Nam si per corporeitatem intelligatur forma substantialis, per quam aliquid in genere substantiae corporeae ordinatur, cum non sit unius nisi una forma substantialis, talis corporeitas non est aliud quam anima. Nam hoc animal per hanc animam non solum est animal, sed animatum corpus, et corpus, et etiam hoc aliquid in genere substantiae existens: alioquin anima adveniret corpori existenti in actu, et sic esset forma accidentalis. Subiectum enim substantialis formae non est actu hoc aliquid, sed potentia tantum: unde cum accipit formam substantialem, non dicitur tantum generari secundum quid hoc aut illud, sicut dicitur in formis accidentalibus, sed dicitur simpliciter generari, quasi simpliciter esse accipiens*].

³⁰⁷ Aquinas, In DA, B. 2, L. 1, 224 [*haec est differentia formae substantialis ad formam accidentalem, quod forma accidentalis non facit ens actu simpliciter, sed ens actu tale vel tantum, utputa magnum vel album vel aliquid aliud huiusmodi. Forma autem substantialis facit esse actu simpliciter. Unde forma accidentalis advenit subiecto iam praeexistenti actu. Forma autem substantialis non advenit subiecto iam praeexistenti in actu, sed existenti in potentia tantum, scilicet materiae primae. Ex quo patet, quod impossibile est unius rei esse plures formas*].

In both of these passages, Aquinas makes the claim that an individual substance can only be given its actual or absolute existence once. That is to say, an individual substance can only be brought into existence one time. And since an individual substance receives this sort of existence from its substantial form, no individual substance can receive another substantial form. After having received such a form, it can only then receive accidental forms, which modify the actual or absolute existence that the individual substance already has. According to Aquinas, then, it is because substantial form gives an individual substance its “actual existence”, its “absolute existence”, or its “existence *simpliciter*” that an individual substance can have only one substantial form.

Aquinas also argues for the unicity of substantial form from the fact that a substantial form gives an individual substance its “absolute unity”, its “unity *simpliciter*”. In his *Quaestiones quodlibetales*, for example, Aquinas argues as follows:

It is impossible for there to be multiple substantial forms in one and the same thing. And this is because a thing has its existence and its unity from the same source. It is clear, however, that a thing has its existence through its form. Hence, it also has its unity through its form. And for this reason wherever there is a multitude of forms, there is not one thing absolutely, just as ‘white human being’ is not one thing absolutely, nor would a two-footed animal be one thing absolutely if it were an animal from one source and two-footed from another.³⁰⁸

And in his *Quaestiones disputatae de spiritualibus creaturis*, he states, “If there were multiple substantial forms in one individual substance, the individual substance would not be one thing

substantiales; quia prima faceret ens actu simpliciter, et omnes aliae advenirent subiecto iam existenti in actu, unde accidentaliter advenirent subiecto iam existenti in actu, non enim faceret ens actu simpliciter sed secundum quid]. For similar existence-based arguments for the unicity of substantial form, see, for example: Aquinas, *CT*, B. 1, 154; Aquinas, *QDPD*, Q. 3, A. 9, Ad. 9; Aquinas, *ST*, I, Q. 76, A. 4, Co.; Aquinas, *QDA*, Q. 1, A. 9, Co.; Aquinas, *QDA*, Q. 1, A. 11, Co.; Aquinas, *SCG*, IV, C. 81, N. 7; Aquinas, *QDSC*, Q. 1, A. 1, Ad. 9; Aquinas, *ST*, I, Q. 76, A. 4, S.C.

³⁰⁸ Aquinas, *QQ*, I, Q. 4, A. 1, Co. [*impossibile est in uno et eodem esse plures formas substantiales: et hoc ideo quia ab eodem habet res esse et unitatem. Manifestum est autem quod res habet esse per formam: unde et per formam res habet unitatem. Et propter hoc, ubicumque est multitudo formarum, non est unum simpliciter, sicut homo albus non est unum simpliciter, nec animal bipes esset unum simpliciter si ab alio esset animal et ab alio bipes*].

absolutely, but only in a qualified sense, like ‘white human being’.”³⁰⁹ In both of these passages Aquinas’s argument is based on the claim that a multiplicity of substantial forms would necessarily undermine the “absolute unity” or “unity *simpliciter*” that is characteristic of an individual substance. In order for all of the parts of a substance to be absolutely or substantially unified, so the argument goes, there must be a single unifier. And since the unifier of an individual substance is its substantial form, there cannot be more than one substantial form within it. According to Aquinas, then, it is because substantial form gives an individual substance its “absolute unity” or “unity *simpliciter*” that an individual substance can have only one substantial form.

Another related claim that Aquinas makes about substantial form is that a substantial form inheres directly or immediately in prime matter, without intermediary. Principally, this means that there can be no other substantial form between prime matter and the substantial form that gives an individual material substance its species. But it also means that there cannot even be any accidental forms between an individual substance’s substantial form and its prime matter. In other words, the substantial form of an individual substance does not inhere in prime matter “through” or “by means of” any other substantial form, or “through” or “by means of” any sort of quantity, quality, relation, place, time, position, state, action, or passion. That a substantial form does not inhere in prime matter through or by means of any other substantial form can be seen to follow from Aquinas’s Unicity Doctrine described above. For, according to that doctrine, there are no other substantial forms in an individual substance that could come between the substantial form that gives an individual substance its species and prime matter. And the claim

³⁰⁹ Aquinas, *QDSC*, Q. 1, A. 3, Co. [*si multiplicarentur multae formae substantiales in uno individuo substantiae, individuum substantiae non esset unum simpliciter, sed secundum quid, sicut homo albus*]. For similar unity-based arguments for the unicity of substantial form, see, for example: Aquinas, *ST*, I, Q. 76, A. 3, Co.; Aquinas, *QDA*, Q. 1, A. 11, Co.; Aquinas, *SCG*, II, C. 58, N. 5; Aquinas, *SCG*, II, C. 58, N. 8.

that a substantial form does not inhere in prime matter through or by means of any accident can be seen to follow from Aquinas's claims about the fundamental roles of substantial form outlined in the previous section of this chapter. In Article Six of Question 76 of the *Prima pars*, for example, Aquinas argues for the immediacy of substantial form as follows:

It is impossible for any accidental disposition to fall between the body and the soul, or between any substantial form and its matter. And the reason for this is that, since matter is in potentiality to all acts in a certain order, it is understood that that which is absolutely first among acts must be present in matter first. Now, what is first among all acts is existence. And matter has actual existence through substantial form, which makes it to exist absolutely, as has already been said. Hence it is impossible for any accidental dispositions to be present in matter before its substantial form.³¹⁰

Here we see that Aquinas argues from the fact that substantial form gives actual or absolute existence to the prime matter in which it inheres to the conclusion that substantial form must also be said to inhere in prime matter without intermediary. In this way, the immediacy of substantial form, like its unicity, can be considered one its derivative features.

According to Aquinas, then, in any individual material substance there is one and only one substantial form, and that one substantial form inheres directly and immediately in prime matter. One striking consequence of these claims is that, in Aquinas's ontology, no individual material substance can have any other individual material substances as parts.³¹¹ And this is so for the following reason. What makes something an individual substance is the possession of a substantial form. But according to Aquinas's Unicity Doctrine, the only substantial form that is present in an individual material substance is the substantial form of the whole. As a result, no

³¹⁰ Aquinas, *ST*, I, 76, 6, Co. [*impossibile est quod aliqua dispositio accidentalis cadat media inter corpus et animam, vel inter quamcumque formam substantialem et materiam suam. Et huius ratio est quia, cum materia sit in potentia ad omnes actus ordine quodam, oportet quod id quod est primum simpliciter in actibus, primo in materia intelligatur. Primum autem inter omnes actus est esse. Impossibile est ergo intelligere materiam prius esse calidam vel quantam, quam esse in actu. Esse autem in actu habet per formam substantialem, quae facit esse simpliciter, ut iam dictum est. Unde impossibile est quod quaecumque dispositiones accidentales praeexistant in materia ante formam substantialem*]. For similar existence-based arguments for the immediacy of substantial form, see, for example: Aquinas, *QDA*, Q. 1, A. 9, Co.; Aquinas, *QDA*, Q. 1, A. 9, Ad. 17; Aquinas, *SCG*, II, C. 71, N. 2.

³¹¹ This claim also played an important role in my discussion of the alternative conception of Aquinas's general ontology in section 2.2.2 above.

part of an individual substance can possess its own, distinct substantial form, which is just to say that no part of an individual substance is itself an individual substance.

Now, there are two ways of interpreting the claim just made. One way to interpret the claim that an individual material substance lacks substantial parts is to read it as saying that an individual substance lacks material parts altogether. On this interpretation, individual material substances are more like extended simples than ordinary material objects, in that they occupy a certain amount of space without having any parts located at different regions.³¹² But this seems not to be Aquinas's view. As we have seen, Aquinas is quite comfortable speaking of individual substances as having spatial, functional, and elemental parts.³¹³ Another way of interpreting the claim that an individual material substance lacks substantial parts is to read it as saying that an individual material substance has material parts, but that those parts and their substantial forms are not "fully actual" or "substantially present" in the whole. In favor of the latter interpretation, Aquinas often describes the material parts, especially the elemental parts, of an individual material substance as being merely "potentially present", or "virtually present", or "present by their power" within the individual substance of which they are parts. In his commentary on Book Seven, Chapter Thirteen of Aristotle's *Metaphysics*, for example, Aquinas argues that

It is impossible for any substance to be composed of any other actually existing substances. For two actually existing things are never one actually existing thing, but two potentially existing things are one actually existing thing, as is clear in the parts of a continuum. For the two halves of any one line are potentially two in that line, which is itself actually one. And this is so because act has the power of separating and dividing. For whatever is one is distinguished from another by its proper form. Hence, for several things to become one actually existing thing, it is necessary that all of those things be included under one form, and that each of those things not have its own form, through

³¹² For more on extended simples, see, for example: Kris McDaniel, "Extended Simples", *Philosophical Studies*, Vol. 133, No. 1 (Mar., 2007): pp. 131-141; Peter M. Simons, "Extended Simples: A Third Way Between Atoms and Gunk", *The Monist*, Vol. 87, No. 3 (Jul., 2004): pp. 371-384.

³¹³ See section 2.1 above.

which it exists actually. For this reason it is clear that if a particular substance is one, it will not be composed of any other actually existing substances.³¹⁴

And, in Article Four, Question 76 of the *Prima pars*, Aquinas argues that the substantial form of an element may be said to exist only “virtually” within the whole:

following what the Philosopher says in Book I of his *On Generation and Corruption*, it must be said that the forms of the elements remain in a mixture not actually but virtually. For the proper qualities of the elements remain, though diminished, in which are the powers of the elemental forms. And in this way the qualities of the mixture are a proper disposition for the substantial form of a mixture, such as the form of a stone or of any kind of soul.³¹⁵

Now precisely what the potential or virtual presence of an element in a compound or mixture amounts to for Aquinas is a bit hard to say. And, thankfully, I need not settle this issue here.³¹⁶

But from the passage just quoted, it seems clear that, on Aquinas’s view, when elements are virtually present in a compound or mixture, their virtual presence entails that at least some of their accidental forms remain in some way in the individual substance of which they are parts, even if, strictly speaking, the elements themselves and their substantial forms do not.

³¹⁴ Aquinas, *In Met.*, B. 7, L. 13, 1588 [*Impossibile est enim aliquam substantiam esse ex pluribus substantiis, quae sunt in ea actu. Duo enim, quae sunt in actu, nunquam sunt unum actu; sed duo, quae sunt in potentia, sunt unum actu, sicut patet in partibus continui. Duo enim dimidia unius lineae sunt in potentia in ipsa linea dupla, quae est una in actu. Et hoc ideo, quia actus habet virtutem separandi et dividendi. Unumquodque enim dividitur ab altero per propriam formam. Unde ad hoc quod aliqua fiant unum actu, oportet quod omnia concludantur sub una forma, et quod non habeant singula singulas formas, per quas sint actu. Quare patet, quod si substantia particularis est una, non erit ex substantiis in ea existentibus actu*]. See also: Aquinas, *In Met.*, B. 5, L. 21, 1102; Aquinas, *In Met.*, B. 7, L. 13, 1591; Aquinas, *In Met.*, B. 7, L. 16, 1631; Aquinas, *In Met.*, B. 7, L. 16, 1632; Aquinas, *QQ*, 9, Q. 2, A. 1, Co.

³¹⁵ Aquinas, *ST*, I, Q. 76, A. 4, Ad. 4 [*dicendum est, secundum philosophum in I de Generat., quod formae elementorum manent in mixto non actu, sed virtute. Manent enim qualitates propriae elementorum, licet remissae, in quibus est virtus formarum elementarium. Et huiusmodi qualitas mixtionis est propria dispositio ad formam substantialem corporis mixti, puta formam lapidis, vel animae cuiuscumque*]. See also: Aquinas, *In BT*, Q. 4, A. 3, Ad. 6; Aquinas, *DME*; Aquinas, *QDA*, A. 9, Ad. 10; Aquinas, *QQ*, I, Q. 4, A. 1, Ad. 3; Aquinas, *SCG*, II, C. 56, N. 4.

³¹⁶ For more on Aquinas’s theory of virtual presence, see, for example: Joseph Bobik, *Aquinas on Matter and Form and the Elements* (Notre Dame, IN: University of Notre Dame Press, 1998); Christopher Decaen, “Elemental Virtual Presence in St. Thomas”, *The Thomist*, Vol. 64 (Apr., 2000): pp. 271-300; Michael Hector Storck, “Parts, Wholes, and Presence by Power: A Response to Gordon P. Barnes”, *The Review of Metaphysics*, Vol. 62 (Sep., 2008): pp. 45-59. For contemporary views that espouse something like Aquinas’s theory of virtual presence, see, for example: William A. Wallace, “Elementarity and Reality in Particle Physics”, in *From a Realist Point of View: Essays on the Philosophy of Science*, Second Edition (Lanham, MD: University Press of America, 1983): pp. 185-212; Joseph E. Earley, “Why There is No Salt in the Sea”, *Foundations of Chemistry*, Vol. 7, No. 1 (Jan., 2005): pp. 85-102; Patrick Toner, “Emergent Substance”, *Philosophical Studies*, Vol. 141, No. 3 (Dec., 2008): pp. 281-297.

According to Aquinas, then, each individual substance has one, and only one, substantial form, and each of the substantial forms that its parts might otherwise have, or have had, is subsumed under the substantial form of the whole. As a result, an individual substance has no distinct substantial parts. However, as we have seen, an individual substance does have potential or virtual parts. And so, Aquinas's Unicity Doctrine is, in some sense, compatible with the claim that an individual substance has material parts.

One last derivative feature of substantial form that I would like to consider here pertains to the way in which a substantial form may be said to be located in the individual substance of which it is a metaphysical part. For Aquinas, the substantial forms of individual material substances, even the substantial forms of human persons, are located in space. The substantial form of any individual material substance is exactly located at the region occupied by the individual substance of which it is a metaphysical part.³¹⁷ In other words, there is no region at which the individual substance is located such that the substantial form is not also located at that region, and there is no region at which the substantial form is located such that the individual substance is not also located at that region. On Aquinas's view, then, the substantial form of an individual material substance is located wherever its individual substance is located. However, the way in which the substantial form of an individual material substance is located in a certain region is importantly different from the way in which the individual substance itself is located in that region. And the difference is as follows. An individual material substance occupies, or is

³¹⁷ The term 'exactly located' is not Aquinas's own. It is one that I have borrowed from contemporary discussions on location. For some helpful overviews of theories of location in contemporary metaphysics, see, for example: Josh Parsons, "Theories of Location", in Dean W. Zimmerman and Karen Bennett (eds.), *Oxford Studies in Metaphysics*, Vol. 3 (Oxford: Oxford University Press, 2007): pp. 201-232; Hud Hudson, *The Metaphysics of Hyperspace* (Oxford: Oxford University Press, 2008); Cody Gilmore, "Location and Mereology", in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, Fall 2014 Edition, available at <http://plato.stanford.edu/archives/fall2014/entries/location-mereology/>; Shieva Kleinschmidt, "Introduction", in Shieva Kleinschmidt (ed.), *Mereology and Location* (Oxford: Oxford University Press, 2014): pp. xiii-xxxiii. See also the other essays in the Kleinschmidt volume.

located at, a certain region of space by partly occupying, or being partly located at, each of its subregions. That is to say, an individual substance has a part at each of the subregions that it occupies. A substantial form, on the other hand, occupies, or is located at, a certain region of space by wholly occupying, or being wholly present at, each of its subregions. In this way, a substantial form is said to be “wholly in the whole and wholly in every single part.”³¹⁸ Following Robert Pasnau, let us refer to the claim that a substantial form is wholly in the whole and wholly in each individual part as the doctrine of “Holenmerism”.³¹⁹

Though counterintuitive, Holenmerism is not incoherent. All that we need to make sense of the doctrine is to admit the possibility of multi-location.³²⁰ An entity is said to be multi-located if and only if it is exactly located at more than one region. The regions at which an entity can be said to be multi-located might themselves be contiguous or non-contiguous, but for any of the regions at which the entity is located, it must be exactly, not partly, located at that region. There could be scattered entities that are partly located at multiple regions, entities that have distinct parts at non-contiguous regions, but such entities would not be multi-located, since they are not exactly located at each of the regions that they occupy.³²¹ Most contemporary metaphysicians think that multi-located entities are at least possible.³²² Indeed, there are a good number of contemporary views that require the existence of such entities. Endurantists, for example, typically hold that persisting objects are exactly located at multiple times through the

³¹⁸ Aquinas, *QDSC*, Q. 1, A. 4, Co. [*totam animam esse in toto, et totam in singulis partibus*]. See also: Aquinas, *ST*, I, Q. 8, A. 2, Ad. 3; Aquinas, *ST*, I, Q. 76, A. 8; Aquinas, *QDA*, A. 10, Co.; Aquinas, *SCG*, II, C. 72, N. 3; Aquinas, *SCG*, II, C. 72, N. 3-4.

³¹⁹ Pasnau, *Metaphysical Themes*, pp. 55-56, 296-298, 333, 335-348. Pasnau cites Henry More as having first coined the term (see *Ibid.*, p. 55).

³²⁰ For discussions on multi-location in contemporary metaphysics, see, for example: Stephen Barker and Phil Dowe, “Paradoxes of Multi-Location”, *Analysis*, Vol. 63, No. 2 (Apr., 2003): pp. 106-114 (and the subsequent literature that resulted); Shieva Kleinschmidt, “Multilocation and Mereology”, *Philosophical Perspectives*, Vol. 25, No. 1 (Dec., 2011): pp. 253-276; Gilmore, “Location and Mereology”, section 6; Nikk Effingham, “The Location of Properties”, *Noûs*, Vol. 49, No. 4 (May, 2015): pp. 846-866; Antony Eagle, “Multiple Location Defended”, *Philosophical Studies*, Vol. 173, No. 8 (Aug., 2016): pp. 2215-2231.

³²¹ See, for example, Gilmore, “Location and Mereology”, section 6.

³²² For discussion and citations, see: Gilmore, “Location and Mereology”, section 6.

course of their existence.³²³ And immanent realists typically hold that property-universals are exactly present at each of their instantiations.^{324, 325}

Consider, then, how a property-universal might turn out to be “Holenmerically” present in a particular region of space according to the immanent realist. Let us say that some particular marble occupies a particular location in space and instantiates a particular shade of red. The universal of that shade of redness, then, is exactly located where the marble is. Now take a qualitatively identical marble and place it next to the first. The universal of that shade of redness is also exactly located where the second marble is. Let us suppose, further, that when we put the two marbles together, there is some further entity that is composed of both marbles. Naturally, this entity is exactly located where both of the marbles collectively are, and, moreover, is itself the same shade of red. The universal of that shade of redness, then, is exactly located where the fusion of the two marbles is. Moreover, the universal of that shade of redness is still exactly located where the first marble is, since the first marble is still red, and it is still exactly located where the second marble is, since the second marble is still red. In this scenario, then, the universal of that shade of redness can be said, and perhaps must be said, to be exactly or wholly present in the whole (the fusion of the two marbles), and exactly or wholly present in each of the

³²³ That is, those endurantists who are also four-dimensionalists. For, according to that combination of views, there really exist multiple times at which a persisting object is wholly present. Endurantists who are also presentists seem not to be similarly committed to such a claim, since the only time that really exists is the present.

³²⁴ Not all immanent-realists are committed to this claim; there are other ways of spelling out the view. For discussion and citations, see: Effingham, “The Location of Properties”. There is also the case of the backward time-traveler, who, if he travels back to an earlier time at which he existed, will be exactly located in two different locations at the same time.

³²⁵ Contemporary discussions also include cases of backwards time-travel. When she travels back to an earlier time at which she existed, the backwards time-traveler is said to become exactly located at two different regions at the same time. Moreover, for Aquinas, there are also the holenmeric cases of the Eucharist and the bi-location of saints. For more on theological cases of holenmeric location, see, for example: Alexander Pruss, “The Eucharist: Real Presence and Real Absence”, in Thomas P. Flint and Michael C. Rea (eds.), *The Oxford Handbook of Philosophical Theology* (Oxford: Oxford University Press, 2009): pp. 512-540; Hud Hudson, “Multiple Location and Singular Location Resurrection”, in Georg Gasser (ed.), *How Do We Survive Our Death? Personal Identity and Resurrection* (Farnham: Ashgate, 2010): pp. 87-102; Nikk Effingham, “Multiple Location and Christian Philosophical Theology”, *Faith and Philosophy*, Vol. 32, No. 1 (Jan., 2015): pp. 25-44.

parts (the first and second marbles). For the immanent realist, then, property-universals can, and perhaps often are, “wholly in the whole and wholly in each individual part.”³²⁶ What I think this example shows us is that we can in fact make sense of Aquinas’s claim that a substantial form is wholly in the whole and wholly in each of the parts, at least inasmuch as we can make sense of views such as endurantism or immanent realism.

Aquinas’s main argument for Hologenmerism proceeds in two parts. As we have seen, a substantial form is said to give to an individual substance its actual and specific existence. A substantial form is also said to give all of the physical or quantitative parts of an individual substance their existence actual and specific existence. According to Aquinas, this means that a substantial form must be present, at least in some way, to the individual substance as a whole and to each of its parts. As Aquinas explains in Article Eight of Question 76 of the *Prima pars*,

Since the soul is united to the body as its form, it must be present in the whole and in each part of the body. For it is not an accidental form of the body but the substantial form of the body. And a substantial form is the perfection not only of the whole but of each of the parts. Now, since a whole consists of parts, a form of the whole which does not give existence to the individual parts of the body is a form of composition and order, like the form of a house, and such a form is an accidental form. But the soul is a substantial form. Hence, it must be the form and actuality not only of the whole but of each of the parts. And therefore, when the soul recedes, what it left is not called an animal or a human being except in an equivocal sense, like a painted animal or a stone animal. So also with respect to a hand or an eye, or flesh and bones, as the Philosopher says. A sign of this is that when the soul recedes, none of the parts of the body have their proper operations, and everything that retains its species retains the operation of the species. But an act is present in that of which it is the act. Hence the soul must be present in the whole body and in each part of it.³²⁷

³²⁶ That proponents of immanent universals are committed to this claim is an important premise in Barker and Dowe’s argument against such views (see their “Paradoxes of Multi-Location”). In a recent article, Nikk Effingham argues that immanent realists are not in fact committed to the claim that, in cases like the one described here, the relevant universal is exactly located at the fusion of the regions at which it is exactly located – only that the universal “entirely fills up” that fusion (see his “The Location of Properties”, p. 865). However, if we also suppose that there is some material object that is exactly located at the fusion of those regions and also instantiates that property, as in the case described here, I think that the immanent realist is indeed committed to the claim that the relevant universal is exactly located at that fusion of regions.

³²⁷ Aquinas, *ST*, I, Q. 76, A. 8, Co. [*quia anima unitur corpori ut forma, necesse est quod sit in toto, et in qualibet parte corporis. Non enim est forma corporis accidentalis, sed substantialis. Substantialis autem forma non solum est*

Aquinas then makes the claim that a substantial form cannot be divided into quantitative parts, from which it follows that it cannot be partly located in the physical or quantitative parts that it enforms. But, as the first half of the argument shows, in order to give the physical or quantitative parts their actual and specific existence, a substantial form must, in some way, be present to them. Therefore, so the argument goes, a substantial form must be present in its entirety both in the whole and in each of the parts:

Supposing, for now, that there is only one soul in the human body (this will be investigated later), it must be said that the soul is not divided according to numerical quantity. And it is clear that it is not divided according to continuous quantity. We say, then, that specific perfection pertains to the soul according to its essence, and that the soul is the form of the body according to its own essence. And just as the form of the body is present in every part of the body, as has been shown, it follows that the soul is wholly present in every part of the body according to the whole of its specific perfection.³²⁸

In the passage just quoted, Aquinas argues from the fact that the *soul* cannot be divided into quantitative parts to the conclusion that the *soul* must be wholly present in each part of the body. (He also briefly suggests that the fact that the soul cannot be divided into quantitative parts can be derived from the fact of its unicity.) However, despite the exclusive references in this passage to the soul, Aquinas also holds that no substantial form can be divided into quantitative parts, as will be clear by the end of the next section of this chapter. And so his conclusion here

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. Et ideo, recedente anima, sicut non dicitur animal et homo nisi aequivoce, quemadmodum et animal pictum vel lapideum; ita est de manu et oculo, aut carne et osse, ut philosophus dicit. Cuius signum est, quod nulla pars corporis habet proprium opus, anima recedente, cum tamen omne quod retinet speciem, retineat operationem speciei. Actus autem est in eo cuius est actus. Unde oportet animam esse in toto corpore, et in qualibet eius parte]. See also: Aquinas, SCG, II, C. 72, N. 3.

³²⁸ Aquinas, QDA, Q. 1, A. 10, Co. [Supposito autem ad praesens quod sit una tantum anima in corpore hominis (de hoc enim postea quaeretur), dicendum quod non dividitur divisione quantitatis quae est numerus. Planum est etiam quod non dividitur divisione continui.. Dicimus ergo quod, cum perfectio speciei pertineat ad animam secundum suam essentiam, anima autem secundum suam essentiam est forma corporis et prout est forma corporis est in qualibet parte corporis, ut ostensum est, relinquitur quod anima tota sit in qualibet parte corporis secundum totalitatem perfectionis speciei]. See also: Aquinas, ST, I, Q. 76, A. 8, Co.; Aquinas, SCG, II, C. 72, N. 3-4; Aquinas, QDSC, Q. 1, A. 4, Co. I say more about why Aquinas thinks that a substantial form lacks quantitative parts in section 3.4 below.

generalizes. The substantial form of any individual material substance must be wholly present in the whole and wholly present in each of the parts.

Now, as with Aquinas's Unicity Doctrine, we have to be careful here not to overstate Aquinas's commitment to Holenmerism. Though, as we have seen, Aquinas does hold that a substantial form is wholly present in each of the parts of an individual substance, he also recognizes a way of speaking such that it is correct to say that the human soul is only partly present to each of the parts of the body. Consider, for example, what Aquinas says right after the previous quotation:

If totality is understood in terms of virtue and power, then the soul is not wholly present in every part of the body, nor even wholly present in the whole body, if we speak of the soul of a human being. For it was shown in the preceding articles that the human soul, since it exceeds the capacity of the body, possesses the power of performing certain operations without associating with the body, like understanding and willing. Hence, the intellect and will are not the act of any organ of the body. But in terms of the other operations that it performs through organs of the body, the whole of its virtue and power is in the whole body, not, however in every part of the body, since different parts of the body are proportioned to different operations of the soul. Hence, with respect to each power, the soul is only present to that part of the body that receives the operation that is performed through that part of the body.³²⁹

For Aquinas, then, with respect to its "specific perfection", and moreover, with respect to its "essence", the soul is wholly present in each of the parts. But, with respect to its powers and its operations, it is not. Different powers of the soul are located in different parts of the body. And some of the powers of the soul are not located in any part of the body. On Aquinas's view, then, there is at least one way of speaking of the human soul, and thus one way of speaking of a

³²⁹ Aquinas, *QDA*, Q. 1, A. 10, Co. [*Si autem accipiatur totalitas quantum ad virtutem et potestatem, sic non est tota in qualibet parte corporis, nec etiam tota in toto, si loquamur de anima hominis. Ostensum est enim ex superioribus quaestionibus quod anima humana, quia excedit corporis capacitatem, remanet ei virtus ad operandum operationes quasdam sine communicatione corporis, sicut intelligere et velle. Unde intellectus et voluntas non sunt actus alicuius organi corporalis. Sed quantum ad alias operationes quas exercet per organa corporalia, tota virtus et potestas eius est in toto corpore; non autem in qualibet parte corporis, quia diversae partes corporis sunt proportionatae ad diversas operationes animae. Unde, secundum illam potentiam, tantum est in aliqua parte quae respicit operationem quae per illam partem corporis exercetur*]. See also: Aquinas, *ST*, I, Q. 76, A. 8, Co.; Aquinas, *SCG*, II, C. 72, N. 3-4; Aquinas, *QDSC*, Q. 1, A. 4, Co.

substantial form, such that it is merely partly located in each of the parts of that it enforms, even if, in perhaps the most important sense, it is also wholly located in them.

In this section of Chapter 3 I have attempted to outline the various derivative features that substantial form can be said to have in Aquinas's ontology. I consider these features derivative not because they are of lesser importance, but because of the way in which Aquinas seems to derive them from the fundamental roles and features outlined in the previous section. As a result of this investigation, we now know that, for Aquinas, in any individual material substance there is one and only one substantial form, and that that one substantial form inheres directly and immediately in prime matter. We now also know that for Aquinas the substantial forms of the physical parts of an individual substance are merely virtually or potentially present within the whole, and that the substantial form of the whole is wholly present in each of those parts. However, our discussion of the last of these derivative features of substantial form also leaves some lingering concerns. What exactly are these "powers" of the soul, and why should their diversity entail that the soul is only partly present in each of the parts that it enforms? Is it really the case that part of the soul is present in one part of the body and one part is present in another? If that much is true, how can Aquinas also say that it is wholly present in each of those parts? In the next section of Chapter 3, I will proceed to investigate the ways in which the soul, and indeed, any substantial form, can be said to be immutable, indivisible, and simple in Aquinas's ontology. And while the main goal of that section will be to outline some important additional features of substantial form, the discussion there should also help to clarify some of the issues left unresolved above.

3.4 Immutability, Indivisibility, Simplicity

Aquinas holds that a substantial form is, in some sense, immutable, indivisible, and simple. In what follows, I will consider the various senses in which a substantial form can be said to have these features in Aquinas's ontology.

Aquinas often remarks that a substantial form is not "susceptible to more and less."³³⁰ He also states that it is not possible for a substantial form to be "more intense or less", nor can a substantial form "admit of variation of degree."³³¹ According to Aquinas, then, one cannot add anything to, or subtract anything from, a substantial form. A substantial form cannot vary in size or quantity. Nor can one weaken or diminish a substantial form. A substantial form cannot vary in intensity or degree. On Aquinas's view, then, it seems that a substantial form cannot undergo any sort of intrinsic change; and in this sense, substantial forms are immutable. On the other hand, a substantial form is not immutable in the sense that it is indestructible. Rather, a substantial form is immutable in the sense that any apparent alteration to a substantial form is actually the complete annihilation of that form and the introduction of an entirely new one. As Aquinas explains in his *De mixtione elementorum*,

Every difference with respect to substantial form varies the species. Moreover, that which receives more and less differentiates that which is more from that which is less and is in a certain way contrary to it, such as the more white and the less white. If, therefore, the form of fire admits of more or less, having been made more or having been made less, it will vary in species and it will not be the same form, but another. And this is what the Philosopher says in Book VIII of the *Metaphysics*, that just as numbers vary in species through addition and subtraction, so also in the case of substances.³³²

³³⁰ See, for example: Aquinas, *QDPD*, Q. 3, A. 9, Ad. 9; Aquinas, *DME*; Aquinas, *ST*, III, Q. 75, A. 7, Co.; Aquinas, *In Met.*, B. 8, L. 3, 1727; Aquinas, *ST*, I, Q. 76, A. 4, Ad. 4.

³³¹ See, for example: Aquinas, *QQ*, I, Q. 4, A. 1, Ad 3; Aquinas, *SCG*, II, C. 19, N. 5; Aquinas, *SCG*, II, C. 63, N. 3; Aquinas, *DME*.

³³² Aquinas, *DME* [omnis differentia secundum formam substantialem variat speciem. Quod autem recipit magis et minus, differt quod est magis ab eo quod est minus et quodammodo est ei contrarium, ut magis album et minus album. Si igitur forma ignis suscipiat magis et minus, magis facta vel minus facta speciem variabit, et non erit eadem forma, sed alia. Et hinc est quod philosophus dicit in octavo *Metaph.*, quod sicut in numeris variatur species per additionem et subtractionem, ita in substantiis].

A substantial form, then, is immutable in the sense that it cannot undergo intrinsic change while remaining in existence.

On Aquinas's view, a substantial form is also indivisible in the sense that it cannot be divided into quantitative parts.³³³ Now, as Aquinas explains, there are two ways in which something can resist division into quantitative parts. First, a thing can resist division into quantitative parts by having the smallest amount of quantity possible. A point resists division into quantitative parts in this way. Second, a thing can resist division into quantitative parts by not having any quantity at all. And this second way of resisting division into quantitative parts is the way in which a substantial form does so. On Aquinas's view, a substantial form does not resist division into quantitative parts because it has just one quantitative part. Rather, a substantial form resists division into quantitative parts because it lacks quantitative parts altogether.³³⁴

Aquinas's main reason for thinking that a substantial form must lack quantitative parts is based on its role as the primary unifier of the individual substance of which it is a part. Speaking of the soul in his *Commentary on Aristotle's De anima*, Aquinas writes,

Different things cannot be united into one thing unless they are united by something else. If therefore there were different souls in the body, it would follow that they would be held together and united by something else. But there is nothing that could unite them or hold them together. Therefore, there are not different souls in the body. That there would be nothing uniting them and holding them together is clear from the following. That which holds together and unifies the souls would be either the body or some other thing. But it is not the body that unites and holds together the soul. On the contrary, the soul holds the body together. For, we see that, with the soul having been separated from the body, the body passes away and falls apart. If, on the other hand, something else holds the souls together, then that thing will be the soul *moreso*, since it holds together and unites the other souls. And if that soul is the soul *moreso*, then again it is necessary to ask

³³³ See, for example: Aquinas, *In DA*, B. 1, L. 14, 205; Aquinas, *In DA*, B. 1, L. 14, 206; Aquinas, *ST*, I, Q. 75, A. 1, S.C.; Aquinas, *QDA*, Q. 1, A. 10, Co.; Aquinas, *QDSC*, Q. 1, A. 2 Ad. 17.

³³⁴ For passages in which Aquinas compares the simplicity of a substantial form to the simplicity of a point, see, for example: Aquinas, *QDA*, Q. 1, A. 10, Ad. 18; Aquinas, *SCG*, II, C. 72, N. 4; Aquinas, *QDSC*, Q. 1, A. 2, Ad. 16. I say more about this analogy in section 3.6 below.

whether it is itself one or if it has many parts. And if it is said that it has many parts, again it will be asked, what unites that thing? And so on to infinity. If it is said that it is itself one, then why did they not say this from the start, that the soul is one? Therefore, the soul is not divisible into quantitative parts, as they said.³³⁵

On Aquinas's view, then, a soul, the substantial form of a living body, must be "intrinsically one" if it is to unite the quantitative parts of the body. In the *Summa contra gentiles*, Aquinas makes use of a similar sort of argument to reach a similar conclusion:

Every body is divisible. Now, every divisible thing requires something holding it together and uniting its parts. If, therefore, the soul were a body, it will have something else holding it together and that would be the real soul. For we see that when the soul recedes, the body dissolves. And if this further thing is itself divisible, then either we must eventually come to something indivisible and incorporeal, which will be the soul, or we must proceed to infinity, which is impossible. Therefore, the soul is not a body.³³⁶

Now, in both of these cases, the conclusion of Aquinas's argument pertains to the soul: it must be said to lack quantitative parts. But the reason that the soul must be said to lack quantitative parts is that it is the primary unifier of the quantitative parts of the body. And so, insofar as any other substantial form plays the same role with respect to the material substance of which it is a part, the conclusion generalizes. Because a substantial form is the primary unifier of the substance of which it is a part, it must itself be radically unified. Because a substantial form unifies the various parts of a substance, it must itself be more than indivisible. It must be simple in that it lacks such parts altogether.

³³⁵ Aquinas, *In DA*, B. 1, L. 14, 206 [*Diversa non possunt uni convenire, nisi ab aliquo uniantur: si igitur sunt diversae animae in corpore, oportet quod ab aliquo contineantur et uniantur: sed nihil est quod uniat eas et contineat: ergo non sunt diversae. Et quod nihil sit continens et uniens animam, sic patet. Quia aut est corpus in quo est, aut aliquid aliud sed corpus non unit eam et continet, immo magis anima continet corpus. Videmus enim quod egrediente anima a corpore, corpus deficit et marcescit. Si autem aliquid aliud continet eam, tunc illud erit maxime anima, quia animae est continere et regere. Et si illud erit anima, tunc iterum oportebit quaerere utrum sit una, aut multipartium. Et si dicatur quod multipartium est, iterum erit quaestio quid uniat illud, et sic in infinitum. Si vero dicatur quod est unum, quare non dicunt mox id est ab ipso principio, quod anima sit unum? Non igitur anima est divisibilis in partes quantitativas, sicut ipsi dicunt*].

³³⁶ Aquinas, *SCG*, II, C. 65, N. 4 [*Omne corpus divisibile est. Omne autem divisibile indiget aliquo continente et uniente partes eius. Si igitur anima sit corpus, habebit aliquid aliud continens et illud magis erit anima: videmus enim, anima recedente, corpus dissolvi. Et si hoc iterum sit divisibile, oportebit vel devenire ad aliquod indivisibile et incorporeum, quod erit anima: vel erit procedere in infinitum, quod est impossibile. Non est igitur anima corpus*].

Are, then, all substantial forms entirely simple, such that they lack any kind of part whatsoever? One reason to think that this conclusion is too strong is that Aquinas regularly speaks of the rational soul, the substantial form of a human person, as a certain sort of whole having certain sorts of parts. For Aquinas, the human soul does indeed lack quantitative parts. And, as we have seen, it has this feature in virtue of being a substantial form. But Aquinas also describes the rational soul as a certain “potential whole” having certain “potential parts”.³³⁷ What are these “potential parts” of the rational soul? The potential parts of the rational soul are its powers, that is, its potentialities, capacities, or faculties. As Aquinas explains in his *Commentary on Aristotle’s De anima*,

The soul does not have parts unless its powers are called parts of it, in the way that each of the capacities of something having various powers can be called a part of it. And so, to mark out the parts of the soul is to mark out each of its powers.³³⁸

Moreover, a rational soul has many different powers or faculties.³³⁹ Minimally, the powers of the rational soul include the rational powers (those pertaining to the intellect and to the will), the sensitive powers (those pertaining to sense perception), and the nutritive powers (those pertaining to growth and reproduction). Now, whichever specific powers the rational soul may be said to have, according to Aquinas, from the above it is clear that these powers must be said to be, in some sense, “potential parts” of it.

One surprising feature of Aquinas’s account of the powers of the soul is that he also holds that each of these powers is itself an accident, an accidental form. He says this explicitly in his treatment of the powers of the soul in Question 77 of the *Prima pars*, for example:

³³⁷ See, for example: Aquinas, *In DA*, B. 1, L. 14, 205; Aquinas, *QDA*, Q. 1, A. 19, Ad. 4; Aquinas, *QQ*, 10, Q. 3, A. 1; Aquinas, *In Sent.*, B. I, D. 8, Q. 5, A. 3, Co.; Aquinas, *In Sent.*, B. I, D. 3, Q. 4, A. 2, Co.; Aquinas, *QDA*, Q. 1, A. 12, Ad. 15.

³³⁸ Aquinas, *In DA*, B. 2, L. 5, 279 [*Non autem habet aliter anima partes, nisi, secundum quod eius potentiae partes eius dicuntur, prout alicuius potentis multa, partes dici possunt potestates ad singulas. Unde determinare de partibus eius est determinare de singulis potentiis eius*].

³³⁹ See, for example: Aquinas, *ST*, I, Q. 77, A. 2-4.

If ‘accident’ is taken to mean that which is divided against substance, then there can be nothing between substance and accident, because they are divided according to affirmation and negation, namely as existing in a subject and as not existing in a subject. In this sense, then, since the powers of the soul are not its essence, they must be accidents, and are included in the second species of quality.³⁴⁰

According to Aquinas, then, the powers of the soul are accidents in the category of quality. And if we take seriously his descriptions of those powers as parts of the soul, then Aquinas also seems to be committed to the claim that there is at least one kind of substantial form, the rational soul, that is itself composed of various accidental forms.

On the other hand, Aquinas is resolute in his conviction that the rational soul is not to be identified with its powers.³⁴¹ Though he often refers to these various powers as parts of the soul, he is careful to point out that these are not “essential parts” or “parts of the essence” of the soul. Aquinas, then, seems to hold that the soul has, in addition to its powers, some sort of “essence”. And the “essence” of the soul is itself simple, which is to say that the soul has no “essential parts”. As Aquinas explains in his disputed questions on the soul, “The powers of the soul are not essential parts of the soul as if constituting its essence, but potential parts.”³⁴² Elsewhere Aquinas speaks of the soul as being “one and simple in essence” and yet “manifold in power” or “many by its powers.”³⁴³ From these remarks, we might be tempted to conclude that, on Aquinas’s view, the rational soul, the substantial form of a human person, is indeed a composite entity: it is composed of a simple essence, along with various powers or faculties.

³⁴⁰ Aquinas, *ST*, I, Q. 77, A. 1, Ad. 5 [*si accidens accipitur secundum quod dividitur contra substantiam, sic nihil potest esse medium inter substantiam et accidens, quia dividuntur secundum affirmationem et negationem, scilicet secundum esse in subiecto et non esse in subiecto. Et hoc modo, cum potentia animae non sit eius essentia, oportet quod sit accidens, et est in secunda specie qualitatis*]. See also: Aquinas, *QDSC*, Q. 1, A. 11, Co.

³⁴¹ See, for example: Aquinas, *ST*, I, Q. 76, A. 1; Aquinas, *QDSC*, Q. 1, A. 11, Co.; Aquinas, *QQ*, 10, Q. 3, A. 1, Co.; Aquinas, *QDA*, Q. 1, A. 12, Co.; Aquinas, *In Sent.*, B. I, D. 3, Q. 4, A. 2, Co.

³⁴² Aquinas, *QDA*, Q. 1, A. 12, Ad. 15 [*potentiae animae non sunt partes essentielles animae quasi constituentes essentiam eius; sed partes potentiales*].

³⁴³ See, for example: Aquinas, *In Sent.*, B. I, D. 8, Q. 5, A. 3, Ad. 2; Aquinas, *QDA*, Q. 1, A. 8, Ad. 14; Aquinas, *QDA*, Q. 1, A. 10, Ad. 17; Aquinas, *QDA*, A. 10, Ad. 2; Aquinas, *QDA*, Q. 1, A. 12, Ad. 17; Aquinas, *QDA*, A. 9, Ad. 14.

What are we to make of the foregoing? Is the rational soul, like the individual substances of the alternative model outlined in Chapter 2, composed of an essence and various accidental forms? Is it just the essence of the soul, then, that is entirely simple such that it lacks any kind of part whatsoever? Or, alternatively, is Aquinas speaking loosely when he speaks of the powers of the soul as its “parts”? In such case, is the rational soul, like other substantial forms, really, in itself, entirely simple such that it really has no parts?

As I see it, we have two options here. First, we could take Aquinas at his word, and take his position to be that at least some substantial forms, namely, human souls, are composite entities: each is composed of a simple, partless essence, along with various powers and capacities. On this view, not all substantial forms, and perhaps not even any, are taken to be entirely partless. On the other hand, we could offer a non-literal reading of Aquinas’s remarks concerning the powers of the soul, and take his considered position to be that all substantial forms, including the rational soul, are really partless. On this view, all substantial forms are taken to be entirely simple.

One interpreter of Aquinas who holds that, on Aquinas’s view, rational souls, and, indeed, all forms, are complex, is Robert Pasnau. In his *Thomas Aquinas on Human Nature*, for example, he argues,

There is nothing objectionable about thinking of the soul as having parts. In general, it is perfectly unexceptional to think of forms as having parts. When speaking of the shape of a triangle, for example, we might distinguish between angles and sides. In the case of a statue, we might refer to the shape of the head, or the shape of the torso. These, surely, are parts of forms. In fact, to describe the soul’s various faculties as parts seems, if anything, a quite cautious label to use. (More cautious, even, than the word I just used, ‘faculties.’) However we want to describe the nutritive, sensory, and rational aspects of the human soul, it seems safe to say that these are all parts.³⁴⁴

³⁴⁴ Robert Pasnau, *Thomas Aquinas on Human Nature* (Cambridge: Cambridge University Press, 2002): p. 144. See also: Robert Pasnau, “Philosophy of Mind and Human Nature” in Brian Davies and Eleonore Stump (eds.), *The Oxford Handbook of Aquinas* (Oxford: Oxford University Press, 2012): p. 359; Robert Pasnau, “Mind and

On the other side of the debate, Eleonore Stump seems to hold that, on Aquinas's view, the rational soul is, in itself, simple, but that its effect on the body is manifold:

A soul is not simple in the way a point is, Aquinas says; rather it is simple just in the sense that it is not the sort of thing that has a certain quantity. On the other hand, considered with respect to what it effects rather than with respect to what it is – that is, considered in its powers or operations – the soul is manifold rather than simple, and the various parts of the body are configured by it in differing ways.³⁴⁵

And in his discussion of Aquinas's theory of substance as a version of substratum theory, Jeffrey Brower also interjects a remark indicating that he thinks that, on Aquinas's view, all forms are simple:

I add the qualification 'possibly also complex' not because Aquinas thinks of forms or properties as complex—on the contrary, he thinks of them as simple—but rather because contemporary substratum theorists often take natural kinds to be explicable in terms of conjunctions of properties.³⁴⁶

One reason to think that the latter, simple, interpretation is the correct interpretation of Aquinas is this: Aquinas admits that the soul can lose certain of its powers while remaining in existence. For example, the rational soul loses its nutritive and sensitive powers when it becomes separated from the body.³⁴⁷ And, as the remarks from the very beginning of this section prove, Aquinas clearly thinks that a substantial form does not admit of more or less, increase or decrease, addition or subtraction. If a soul were to lose one of its parts, this would presumably mean that there is, in some sense, less of it than there was before. A substantial form cannot endure any such alteration. Hence, we ought to conclude that Aquinas does not really mean to say that the powers of the soul are parts of it. Further evidence for a non-literal reading can be

Hylomorphism", in John Marenbon (ed.), *The Oxford Handbook of Medieval Philosophy* (Oxford: Oxford University Press, 2012): p. 501.

³⁴⁵ Eleonore Stump, *Aquinas* (New York: Routledge, 2004): p. 202.

³⁴⁶ Jeffrey E. Brower, *Aquinas's Ontology of the Material World: Change, Hylomorphism, and Material Objects* (Oxford: Oxford University Press, 2014): p. 131. See also, David S. Oderberg, *Real Essentialism* (New York: Routledge, 2007): p. 182; David S. Oderberg, "Essence and Properties", *Erkenntnis*, Vol. 75, Vol. 1 (Jul., 2011): pp. 95-96.

³⁴⁷ See, for example: Aquinas, *SCG*, IV, C. 81, N. 9.

found in remarks that Aquinas makes about the soul elsewhere. In support of Stump's understanding of the powers of the soul as its immediate, necessary effects, for example, Aquinas often refers to the soul as the "principle" of such powers, where principle can be taken to mean "cause".³⁴⁸ And in at least one passage, early on in his *Quaestiones quodlibetales*, Aquinas says that it is an "abuse of predication [*abusiva praedicatione*]" to speak of the soul as a "potential whole", even if it is less of an abuse than speaking of it as an "integral whole".³⁴⁹ Admittedly, these points do not definitively demonstrate the truth of the simple view. However, they do show that there are some good reasons to think that Aquinas does not really hold that the powers of the rational soul are parts of it. If that much turns out to be true, then Aquinas's remarks that seem to suggest that the rational soul is complex do not, in fact, stand in the way of a universal claim about the simplicity of substantial form. I think that the earlier claims about the unifying role of the substantial form push us toward the conclusion that, on Aquinas's view, a substantial form is, in addition to being, in the senses specified above, immutable and indivisible, entirely simple as well.^{350, 351}

³⁴⁸ See, for example: Aquinas, *QDA*, A. 9, Ad. 14.

³⁴⁹ Aquinas, *QQ*, 10, Q. 3, A. 1, Co. Wippel says a bit about this passage at p. 280 of his *Metaphysical Thought*.

³⁵⁰ And this conclusion will, in turn, help to mitigate the concerns at the end of section 3.4. If the powers of the soul are not really parts of it, if the soul really is without parts, then to speak of the soul as being merely partly present in the whole by virtue of its various powers being dispersed throughout the parts of the body is merely a loose way of speaking of the soul's presence. Strictly speaking, the soul, and, indeed, any substantial form, lacks parts, and so can only be wholly present in each of the qualitative or physical parts of its individual substance.

³⁵¹ One concern that one might have about this conclusion is that it entails that the substantial forms of material substances are equal to God in their simplicity. In response to this sort of worry, I would point the reader, once again, to Question Three of the *Prima pars*. As I considered in some detail in Chapter Two, a peculiar feature of Question Three is that it does not end with the conclusion that God is absolutely simple in every way. Here Aquinas includes an additional article (Article Eight) that comes after he has already concluded that God must be absolutely simple in Article Seven. Article Eight, which Aquinas is careful to include in his discussion of Divine simplicity, addresses the issue of whether God, who has already been shown to be absolutely simple in the seven preceding articles, enters into the composition of any other thing. Why is this issue raised here? I think it is significant that Aquinas considers in this article whether God is a *formal* part of any other thing. This suggests that one of the main purposes of the article is to distinguish God from substantial forms. On my reading, substantial forms are just as simple as God in all of the ways outlined in articles one through seven of Question Three. And so Aquinas must establish some other way in which substantial forms can be distinguished from God. And the way in which they are so distinguished is that substantial forms are essential parts of individual substances, whereas God is no part of anything else. If substantial forms were complex in any of the ways outlined in the earlier articles, Aquinas would not need to introduce this way

3.5 Identity over Time

In Aquinas's ontology, substantial form also has an important role to play with respect to the identity of an individual substance over time. In what follows, I will argue that, on Aquinas's view, the identity of an individual substance over time is grounded in, and thus explained by, the identity of its substantial form.

On the alternative model of Aquinas's general ontology outlined in Chapter 2, an individual material substance is said to have three kinds of parts: physical or quantitative parts, accidental metaphysical parts, and essential metaphysical parts. As was explained above, the physical or quantitative parts of an individual substance include its spatial parts (such as its top and bottom halves), its functional parts (such as its limbs and organs), and its elemental parts (such as its quarks and leptons). The accidental metaphysical parts of an individual substance include all of its accidental forms (such as its size, shape, and temperament). And the essential metaphysical parts of an individual substance include its prime matter and substantial form.

According to Aquinas, an individual material substance can and does persist through various changes in its physical or quantitative parts. In Book Four of the *Summa contra gentiles*, for example, he explains that

In the body of a human being, for as long as the human being is alive, the parts are not always the same with respect to their matter, but only with respect to their species. With respect to the matter, the parts flow in and out. But this does not prevent a human being from being numerically one from the beginning of his life to the end of it. An example of this can be taken from fire, which, while it burns continuously, is said to be numerically one, on account of the fact that its species remains, even though the wood is consumed and new wood is added. So also in the case of the human body. For the form and species of each part remains continuously through the whole of its life, but the matter of the parts is dissolved through the action of natural heat and new matter is generated through nourishment. Therefore, a human being does not differ in number according to his

of distinguishing substantial forms from God in Article Eight. In any event, the lesson here is that even if my interpretation of Aquinas entails that the substantial forms of material substances are equal to God in their simplicity, it does not follow that there is no mereological difference between them.

different ages, even though not everything that is in that human being materially at one time is in him at another.³⁵²

However, the fact that an individual material substance can persist through various changes in its physical parts does not entail that an individual material substance can ever exist without any physical parts at all. Individual material substances could be such that each one must have some physical part or other at every moment of its existence. And there might be some functional parts of an individual material substance that it cannot lose without ceasing to exist.³⁵³ I will say a bit more about these particular issues later on, but from the passage above it is at least clear that Aquinas recognizes a significant amount of variation in an individual material substance's physical parts over time.

According to Aquinas, an individual substance can also persist through various changes in its accidental metaphysical parts. At Question Two, Article Three of the *Tertia pars*, for example, Aquinas notes that

A difference in accidents makes a thing 'other' ...[but] it is clear that, in created things, the otherness that results from a difference in accidents can pertain to the same hypostasis or suppositum. In such cases, numerically the same thing can underlie different accidents... Hence... that one thing is said to be 'other' does not signify a difference in suppositum, but only a difference in accidental forms.³⁵⁴

³⁵² Aquinas, *SCG*, IV, C. 81, N. 12 [*In corpore autem hominis, quandiu vivit, non semper sunt eadem partes secundum materiam, sed solum secundum speciem; secundum vero materiam partes fluunt et refluunt: nec propter hoc impeditur quin homo sit unus numero a principio vitae usque in finem. Cuius exemplum accipi potest ex igne, qui, dum continue ardet, unus numero dicitur, propter hoc quod species eius manet, licet ligna consumantur et de novo apponantur. Sic etiam est in humano corpore. Nam forma et species singularium partium eius continue manet per totam vitam: sed materia partium et resolvitur per actionem caloris naturalis, et de novo adgeneratur per alimentum. Non est igitur alius numero homo secundum diversas aetates, quamvis non quicquid materialiter est in homine secundum unum statum sit in eo secundum alium*]. See also: Aquinas, *In DGC*, L. 15, 107; Aquinas, *CT*, B. I, 159; Aquinas, *ST*, I, Q. 119, Ad. 2; Aquinas, *ST*, I, Q. 119, A. 1, Ad. 5. I say more about Aquinas's fire analogy in section 3.6 below.

³⁵³ At *In Met.*, B. 7, L. 10, 1489, for example, Aquinas seems to say that there are certain functional parts, namely, one's brain and one's heart, that one cannot lose without ceasing to exist.

³⁵⁴ Aquinas, *ST*, III, Q. 2, A. 3, Ad 1 [*sicut accidentalis differentia facit alterum... Manifestum est autem quod alteritas, quae provenit ex differentia accidentali, potest ad eandem hypostasim vel suppositum in rebus creatis pertinere, eo quod idem numero potest diversis accidentibus subesse... Unde sicut quod dicitur alterum et alterum in creaturis, non significat diversitatem suppositi, sed solum diversitatem formarum accidentalium*].

However, the fact that an individual substance can persist through various changes in its accidental parts does not entail that an individual substance can ever exist without any accidents at all. On the contrary, on Aquinas's view, every individual substance must, at any time that it exists, have some accidental part or other. In his *Quaestiones disputata de malo*, for example, Aquinas explains that

Just as the genus, without which there cannot be a species, is considered on its own without the differentia, so also the species, without which there cannot be an individual, is considered on its own without the accidents. For it is not said concerning the nature of a human being that it is white or black or something of this sort. But it is nevertheless impossible that some particular human being exist without being white or black or something of this sort.³⁵⁵

And in his *Quaestiones quodlibetales*, Aquinas stipulates that, as a result of its having been created by God, any created substance will always have at least one accident in the category of relation: its existential-dependence on God's sustaining power.³⁵⁶ Moreover, as will be explored in more detail below, Aquinas also recognizes a category of accidents called "necessary", "non-separable", or "proper" accidents, which are, by definition, the particular accidents of an individual substance that it cannot lose without ceasing to exist.³⁵⁷ Nevertheless, from the above it is clear that, in Aquinas's ontology, the numerical identity of an individual substance over time does permit some significant amount of variation with respect to its accidental metaphysical parts.

On Aquinas's view, then, the relationship between an individual substance and its physical and accidental metaphysical parts is somewhat fluid. An individual substance can and does persist through various changes in those sorts of parts. However, the relationship between

³⁵⁵ Aquinas, *QDM*, Q. 2, A. 5, Co. [*Sicut autem genus consideratur in sua ratione sine differentiis, sine quibus non potest esse species, ita species consideratur secundum suam rationem sine accidentibus, sine quibus tamen non potest esse individuum. Non enim dicitur de ratione hominis esse album vel esse nigrum vel aliquid huiusmodi. Impossibile est tamen esse aliquem hominem singularem quin sit albus vel niger, vel aliquid huiusmodi*].

³⁵⁶ Aquinas, *QQ*, 7, Q. 4, A. 3, Ad. 4.

³⁵⁷ See, for example: Aquinas, *DEE*, Ch. 6; Aquinas, *DPN*, Ch. 2; Aquinas, *ST*, I, Q. 3, A. 6, Co.; Aquinas, *ST*, I, Q. 77, A. 1, Ad. 5; Aquinas, *QDA*, Q. 1, A. 12, Ad. 7.

an individual substance and its essential metaphysical parts appears to be much more rigid. There is reason to believe that, on Aquinas's view, an individual substance cannot survive any sort of change in those parts. For, it is precisely *because* the essential parts of an individual substance remain the same over time that the individual substance itself is said to persist through other sorts of changes. Consider once again the passage from the *Tertia pars* above, this time without the ellipses:

A difference in accidents makes a thing 'other'; a difference of essence makes 'another thing'. Now, it is clear that, in created things, the otherness that results from a difference in accidents can pertain to the same hypostasis or suppositum. In such cases, numerically the same thing can underlie different accidents. However, in created things, it is not the case that numerically the same thing can subsist in different essences or natures. Hence, that, in creatures, one thing is said to be 'other' does not signify a difference in suppositum, but only a difference in accidental forms.³⁵⁸

From this passage we may conclude that, on Aquinas's view, the persistence of the very same essence or nature is a *necessary* condition for the persistence of the very same individual substance. And, as we have seen, the essence or nature of an individual material substance is composed of its substantial form and prime matter. As a result, Aquinas can be read here as saying that a necessary condition for the persistence of the very same individual substance is the persistence of the very same prime matter and the very same substantial form. Consider also the following passage from Aquinas's *Quaestiones disputatae de anima*: "For something to remain the same in number it is sufficient that the essential principles remain the same in number. It is not required that the properties and accidents remain numerically the same."³⁵⁹ This second passage tells us that, on Aquinas's view, the persistence of the very same 'essential principles',

³⁵⁸ Aquinas, *ST*, III, Q. 2, A. 3, Ad 1 [*sicut accidentalis differentia facit alterum, ita differentia essentialis facit aliud. Manifestum est autem quod alteritas, quae provenit ex differentia accidentali, potest ad eandem hypostasim vel suppositum in rebus creatis pertinere, eo quod idem numero potest diversis accidentibus subesse, non autem contingit in rebus creatis quod idem numero subsistere possit diversis essentiis vel naturis. Unde sicut quod dicitur alterum et alterum in creaturis, non significat diversitatem suppositi, sed solum diversitatem formarum accidentalium*].

³⁵⁹ Aquinas, *QDA*, Q. 1, A. 19, Ad. 5 [*Ad hoc enim quod aliquid sit idem numero, sufficit quod principia essentialia sint eadem numero; non autem requiritur quod proprietates et accidentia sint eadem numero*].

that is, the substantial form and prime matter, is also a *sufficient* condition for the persistence of the very same individual substance. It is not, then, the sameness of the accidental metaphysical parts or the sameness of physical parts that grounds the persistence of the individual substance over time. Rather, it is the sameness of the essential metaphysical parts or principles, that is, the sameness of substantial form and prime matter.

As a result of these and earlier discussions, I think that we should interpret Aquinas's claims about necessary functional parts and necessary accidents in the following way: even if there are physical and accidental parts that an individual substance cannot lose without ceasing to exist, the individual substance has such parts precisely *because* of its essential parts or principles. As will be explored in more detail below, this is clearly the case for necessary accidents. The necessary accidents of an individual substance are said by Aquinas to "flow from" its substantial form necessarily, such that no individual substance can ever exist without its necessary accidents.³⁶⁰ And I think a similar sort of asymmetrical dependence can be said to hold between an individual material substance's substantial form and its necessary physical parts, if there are any.

One might wonder at this point whether every individual material substance requires the numerical identity of *both* of its essential metaphysical parts in order for its own numerical identity to be preserved. In the case of "normal" material substances, that is, all material substances other than human persons, the answer to our question is clearly, "yes". The controversy seems to arise only in the context of Aquinas's discussions of the post-mortem persistence of human persons. As I explained in Chapter 2,³⁶¹ some interpreters of Aquinas, the "corruptionists", say that, on Aquinas's view, all individual substances, including human

³⁶⁰ See, for example: Aquinas, *ST*, I, Q. 77, A. 6.

³⁶¹ See section 2.4.2 above.

persons, are necessarily composed of both the very same substantial form and the very same prime matter. On this interpretation, if either essential part is lost or replaced, the individual material substance has necessarily ceased to exist. Other interpreters, the “survivalists”, read Aquinas as making an exception for human persons. On this latter interpretation, human persons can maintain their numerical identity without the numerical identity of their prime matter – indeed, without any prime matter at all. However, every other individual material substance still requires the numerical identity of both of its essential parts.

With that having been said, I do not think that establishing the truth of either of these interpretations is necessary to establish my conclusion that it is the substantial form that serves as the metaphysical ground or explanation for an individual substance’s identity over time. And this is so for the following reason. Although it is true to say that an individual substance’s prime matter maintains its numerical identity through various changes in an individual substance’s physical and accidental parts, that much is trivially true. Prime matter maintains its numerical identity through changes in the individual substances themselves, that is, through changes in substantial form. That is what makes it the subject of substantial change. Moreover, according to Aquinas, both diachronically and synchronically, the prime matter of any individual material substance is numerically identical to the prime matter of any other individual material substance.³⁶² Prime matter is, in itself, “without any dispositions that would cause it to differ according to number.”³⁶³ As a result, even if sameness of prime matter turns out to be a necessary condition for sameness of substance, the fact that the prime matter is the same does not *explain* why the individual material substance remains the very same individual material substance that it is. For that, we must look to the substantial form. I conclude, then, that, in

³⁶² See, for example: Aquinas, *DPN*, Ch. 2; Aquinas, *In DGC*, L. 12, 90; Aquinas, *In BT*, Q. 4, A. 2, Ad. 1.

³⁶³ Aquinas, *DPN*, Ch. 2 [*est sine dispositionibus quae faciunt differre secundum numerum*].

Aquinas's ontology, it is substantial form that serves as the ultimate ground and explanation for the identity of an individual substance over time.³⁶⁴

3.6 Analogies

In addition to offering various functional characterizations of substantial form, Aquinas also frequently uses analogies as a way of shedding light on the nature of substantial form, some of which have already made an appearance in this chapter. Most of these analogies he inherits from Aristotle, and, in many places, Aquinas is careful to point out the ways in which the analogies break down. Nevertheless, his consistent use of these analogies is evidence that he thinks that they help us to better see what a substantial form is like, what it does, and how it does it. In what follows, then, I will consider some of the main analogies for substantial form that Aquinas uses in his works.

In English, the word 'form' typically refers to a thing's shape or figure. And so, when asked to describe the 'form' of an object, one might begin by giving a description of the way in which that thing is shaped, or the way in which its parts are arranged. Following Aristotle, Aquinas often introduces the idea of form in a similar way: through the example of shape or figure. In his early work, *De principiis naturae*, for example, Aquinas explains that "when a statue comes to be from copper, the copper that is in potentiality to the form of the statue is the matter...the shape [*figura*], on account of which it is called a statue, is the form."³⁶⁵ Aquinas also makes use of this same example in his *Quaestiones disputatae de veritate* and in his *Commentary on Aristotle's Metaphysics*.³⁶⁶ Now, it is important to note here that in the case of substantial

³⁶⁴ Since the identity of the physical or quantitative parts of an individual substance is grounded in the individual substance's substantial form, I think it also follows that the substantial form serves as the ultimate ground and explanation for the identity of those parts over time as well.

³⁶⁵ Aquinas, *DPN*, Ch. 1 [*quando ex cupro fit idolum, cuprum quod est potentia ad formam idoli, est material... figura autem a qua dicitur idolum, est forma*].

³⁶⁶ Aquinas, *QDV*, Q. 3, A. 1, Co.; Aquinas, *In Met.*, B. 7, L. 2, 1277.

form, Aquinas does not think that the comparison to the shape of a statue is entirely apt.

Immediately following the passage from his *De principiis* above, for example, Aquinas explains that

[the shape of a statue] is not, however, a substantial [form] because the copper has actual existence before the coming of the shape or form, and its existence does not depend on that shape; but it is an accidental form. For all of the forms of artifacts are accidental forms. For art does not operate except on that which has already been constituted in perfect existence by nature.³⁶⁷

And in his remarks on Aristotle's use of the analogy of shape in the *Metaphysics*, Aquinas similarly reminds the reader that

[t]his example should not be taken as expressing the actual truth of the matter, but as describing a relevant similarity. For, shape and the forms of other artifacts are not substantial forms, but accidental forms. But since the way in which shape is related to bronze in the case of artifacts is similar to the way in which substantial form is related to matter in the case of natural things, this example is used for the sake of demonstrating what is unknown through what is evident.³⁶⁸

Strictly speaking, then, shape or figure is an accidental form, not a substantial form.

Nevertheless, Aquinas uses this basic analogy as a means of illustrating the general distinction between the form of an object and its matter. We might say, then, that, according to Aquinas, the way in which a substantial form is something over and above its corresponding matter is analogous to the way in which the shape of a statue is something over and above the bronze of which the statue is made.

Aquinas also makes use of similar analogies to illustrate the relationship between substantial form and prime matter. Commenting on Aristotle's *De anima*, Aquinas explains that

³⁶⁷ Aquinas, *DPN*, Ch. 1 [*non autem substantialis quia cuprum ante adventum formae seu figurae habet esse in actu, et eius esse non dependet ab illa figura; sed est forma accidentalis. Omnes enim formae artificiales sunt accidentales. Ars enim non operatur nisi supra id quod iam constitutum est in esse perfecto a natura*].

³⁶⁸ Aquinas, *In Met.*, B. 7, L. 2, 1277 [*Quae quidem exemplificatio non est accipienda secundum veritatem, sed secundum similitudinem proportionis. Figura enim et aliae formae artificiales non sunt substantiae, sed accidentia quaedam. Sed quia hoc modo se habet figura ad aes in artificialibus, sicut forma substantialis ad materiam in naturalibus, pro tanto utitur hoc exemplo, ut demonstret ignotum per manifestum*]. See also: Aquinas, *SCG*, III, C. 104, N. 8.

There have been many concerns about the way in which the soul and the body become one. Some have supposed that there is some medium in which the soul is united with and conjoined to the body. But this concern no longer has a point, with it having been shown that the soul is the form of the body. And this is so because, as the Philosopher says, it is not necessary to ask if the soul and the body are one just as there is no doubt, for example, about a shape in wax, nor about any other matter and the form of which it is the matter. For it was shown in Book VIII of the *Metaphysics* that form is united to matter through itself, as the act of the matter. And, thus, for the form to be united to matter just is for the matter to be in actuality.³⁶⁹

Here we see that, on Aquinas's view, the way in which substantial form and prime matter are intimately related to one another is analogous to the way in which an impression or seal is intimately related to the wax in which it has been pressed.

In Question 75, Article 1 of the *Prima pars*, Aquinas also introduces the example of heat and that which is hot: "The soul, which is the first principle of life, is not a body, but is the act of a body, just as heat, which is the principle of heat, is not a body, but a certain act of a body."³⁷⁰ And in his *Commentary on Aristotle's Metaphysics*, he lists "stillness" and "calm" as examples of forms present in their respective matters:

Stillness, which refers to the state of the air when there is no wind, is rest in a large amount of air. For if only a small amount of air included in some container is at rest, it is not called stillness. In this definition, air is like the matter and rest is like the form. Similarly, when it is said that calmness is smoothness of the sea, the sea is the matter and smoothness is the form.³⁷¹

³⁶⁹ Aquinas, *In DA*, B. 2, L. 1, 234 [*Fuit enim a multis dubitatum, quomodo ex anima et corpore fieret unum. Et quidam ponebant aliqua media esse, quibus anima corpori uniretur, et quodammodo colligaretur. Sed haec dubitatio iam locum non habet, cum ostensum sit, quod anima sit forma corporis. Et hoc est quod dicit quod non oportet quaerere si ex anima et corpore fit unum, sicut nec dubitatur circa ceram et figuram, neque omnino circa aliquam materiam et formam, cuius est materia. Ostensum est enim in octavo metaphysicae quod forma per se unitur materiae, sicut actus eius; et idem est materiam uniri formae, quod materiam esse in actu*]. See also: Aquinas, *ST*, I, Q. 76, A. 7, S.C.; Aquinas, *QDA*, Q. 1, A. 2, S.C.; *In Sent.*, B. 2, D. 1, Q. 2, A. 4, Ad. 3; Aquinas, *In Sent.*, B. 2, D. 31, Q. 2, A. 1, Co.

³⁷⁰ Aquinas, *ST*, I, Q. 75, A. 1, Co. [*Anima igitur, quae est primum principium vitae, non est corpus, sed corporis actus, sicut calor, qui est principium calefactionis, non est corpus, sed quidam corporis actus*]. See also: Aquinas, *CT*, B. 1, Ch. 85.

³⁷¹ Aquinas, *In Met.*, B. 8, L. 2, 1701 [*Sicut nenemia, quod significat dispositiones aeris, quando est sine vento, est quies in multo aere: non enim si modicum de aere in aliquo vase incluso quiescat, dicitur serenitas. In hac autem definitione, aer est ut materia, et quies ut forma. Similiter cum dicitur, tranquillitas est planities maris, mare est materia, et planities ut forma*]. Thomas Karmo makes use of this same passage from Aristotle's *Metaphysics* in arguing for a conception of substantial form as "disturbance" (see his "Disturbances", *Analysis*, Vol. 37, No. 4 (Jun., 1977): pp. 147-148. I will have more to say about Karmo's view in Chapter Four.

Now, in all three of these cases, Aquinas is careful to point out that the particular examples used (heat, stillness, calm) are all really accidental forms rather than substantial forms.³⁷²

Nevertheless, he thinks that the examples help us to see how a substantial form is related to its matter. From the first example we may conclude that, according to Aquinas, the way in which a substantial form is the actuality of a body is analogous to the way in which heat is the actuality of a body. And from the second example we may conclude that the way in which a substantial form is a certain modification of matter is analogous to the way in which stillness is a certain modification of air or calm a certain modification of the sea.

Two analogies that Aquinas borrows from Aristotle the roles of which are a bit less clear are his axe analogy and his eye analogy, both from Aristotle's *De anima*. In his commentary on the axe passage, Aquinas summarizes Aristotle's remarks as follows:

If some tool, that is, an artificial instrument, for example, an axe, were a physical, that is to say, a natural, body, it would possess its own form in the way stated above. And, therefore, the Philosopher continues, the what-it-is of an axe would be its substance, that is, the form of the axe, through which the nature of an axe is received, and that by which an axe is said to be an axe, which he calls the being of an axe. This, he says, is the substantial form of the axe. And the reason he says this is that the forms of natural bodies are in the category of substance. And furthermore if an axe were not only a physical body but even a living body the form of an axe would be its soul, and with that soul having been separated from it, it would no longer be an axe, except equivocally, just as with the soul having been separated from the body, there is neither flesh nor eye, except equivocally.³⁷³

Here the comparison is between the substantial form of a thing and the "what-it-is" of an axe.

Aquinas summarizes Aristotle's remarks in the eye passage similarly:

³⁷² See, for example: Aquinas, *ST*, I, Q. 76, A. 4, Co.; Aquinas, *In Met.*, B. 8, L. 2, 1701.

³⁷³ Aquinas, *In DA*, B. 2, L. 2, 237 [*si aliquid organorum, id est artificialium instrumentorum, ut puta dolabra esset corpus physicum, id est naturale, forma sua hoc modo se haberet ad ipsum sicut dictum est. Et ideo subdit. Erat quidem dolabrae esse substantia ipsis, id est forma dolabrae, secundum quam accipitur ratio dolabrae: quam quidem rationem nominat esse dolabrae, eo quod secundum eam dolabra dicitur esse dolabra, haec inquam forma est substantia dolabrae. Et hoc ideo dicit, quia formae corporum naturalium sunt in genere substantiae. Et ulterius si dolabra non esset solum corpus physicum, sed etiam corpus animatum, forma dolabrae esset anima, et ea separata, non esset amplius dolabra nisi aequivoce, sicut separata anima, non est caro nec oculus, nisi aequivoce*].

If the eye were an animal, it would follow that sight is its soul, since sight is the substantial form of the eye and the eye is the matter of sight, just as an organic body is the matter of the soul. With sight having been removed, the eye does not remain except equivocally, like an eye made of stone or a painted eye is called an eye in an equivocal sense. And this is so because those things which are equivocal have only their name in common and differ in their substance. And therefore upon removing the form by which an eye is the substance that it is, the eye itself no longer remains, unless the name ‘eye’ is used equivocally. Now, that which is the case with respect to a part of the living body, it is necessary to accept with respect to the whole living body, namely that just as sight is the substantial form of the eye and upon its removal the eye does not remain except equivocally, so also the soul is the substantial form of the body and upon its removal the living body does not remain except equivocally.³⁷⁴

Here we have a comparison between the substantial form of a thing (or, in the case of a living thing, the soul of that thing) and the sight that is present in an eye. In both the axe analogy and the eye analogy the point seems to be that the substantial form of a thing is essential to it, much like “being-an-axe” is essential to an axe and sight is essential to an eye. Though the examples used here are not particularly illuminating, we may conclude from his use of them that, according to Aquinas, the way in which a substantial form is essential to that of which it is the substantial form is analogous to the way in which the “what-it-is” of an axe is essential to an axe, or sight to an eye.

Two analogies that tell us a bit more about the role of substantial form with regard to the persistence of material substances over time are Aquinas’s fire analogy and his number analogy. According to Aquinas’s fire analogy, the substantial form of a thing, which we now know is essential to that thing, can, and does, persist through various changes in that thing’s material

³⁷⁴ Aquinas, *In DA*, B. 2, L. 1, 239 [*si oculus esset animal, oporteret quod visus esset anima eius, quia visus est substantialis forma oculi, et oculus est materia visus, sicut corpus organicum materia animae. Deficiente autem visu, non remanet oculus nisi aequivoce, sicut oculus lapideus aut depictus aequivoce dicitur oculus. Et hoc ideo est, quia aequivoca sunt, quorum nomen solum commune est et ratio substantiae diversa: et ideo sublata forma a qua est ratio substantiae oculi, non remanet nisi nomen oculi aequivoce dictum. Quod ergo invenitur in parte viventis corporis, oportet accipere in toto vivente corpore, scilicet quod sicut visus est forma substantialis oculi, et eo remoto non remanet oculus nisi aequivoce, ita anima est forma substantialis viventis corporis, et ea remota non remanet corpus vivum nisi aequivoce*]. See also: Aquinas, *QDA*, Q. 1, A. 10, Ad. 10.

parts, much like a fire's form is said to endure as the fire burns through different pieces of wood.

In the *Summa contra gentiles*, for example, Aquinas explains:

In the body of a human being, for as long as the human being is alive, the parts are not always the same with respect to their matter, but only with respect to their species. With respect to the matter, the parts flow in and out. But this does not prevent a human being from being numerically one from the beginning of his life to the end of it. An example of this can be taken from fire, which, while it burns continuously, it is said to be numerically one, on account of the fact that its species remains, even though the wood is consumed and new wood is added. So also in the case of the human body. For the form and species of each part remains continuously through the whole of its life, but the matter of the parts is dissolved through the action of natural heat and new matter is generated through nourishment. Therefore, a human being does not differ in number according to his different ages, even though not everything that is in that human being materially at one time is in him at another.³⁷⁵

In other places, Aquinas makes similar comparisons between a substantial form and the form of a river, through which flows quantities of water, and the form of a city or populace, which survives through various changes in its membership.³⁷⁶ From this analogy we may conclude that, according to Aquinas, the way in which a substantial form grounds the identity of the individual substance of which it is a part through changes in that substance's material parts is analogous to the way in which the form or species of fire grounds the identity of that fire through various changes in the wood that it burns.

But what is it about a substantial form that allows it to persist, and ground the persistence of the material substance of which it is a part, through material change? One revealing analogy in

³⁷⁵ Aquinas, *SCG*, IV, C. 81, N. 12 [*In corpore autem hominis, quandiu vivit, non semper sunt eadem partes secundum materiam, sed solum secundum speciem; secundum vero materiam partes fluunt et refluunt: nec propter hoc impeditur quin homo sit unus numero a principio vitae usque in finem. Cuius exemplum accipi potest ex igne, qui, dum continue ardet, unus numero dicitur, propter hoc quod species eius manet, licet ligna consumantur et de novo apponantur. Sic etiam est in humano corpore. Nam forma et species singularium partium eius continue manet per totam vitam: sed materia partium et resolvitur per actionem caloris naturalis, et de novo adgeneratur per alimentum. Non est igitur alius numero homo secundum diversas aetates, quamvis non quicquid materialiter est in homine secundum unum statum sit in eo secundum alium*]. See also: Aquinas, *CT*, B. 1, 159; Aquinas, *In DGC*, B. 1, L. 15, 107; Aquinas, *ST*, I, Q. 119, A. 1, Ad. 2; Aquinas, *ST*, I, Q. 119, A. 1, Ad. 5; Aquinas, *In DA*, B. 2, L. 9, 341-342.

³⁷⁶ See, for example: Aquinas, *In DGC*, B. 1, L. 15, 107; Aquinas, *In Pol.*, B. 3, Ch. 2, 6; Aquinas, *QDSC*, Q. 1, A. 9, Ad. 10.

this regard is Aquinas's number analogy. According to Aquinas, a substantial form is like a number in the following way:

Just as a number is not susceptible of more or less, neither is the substance of a thing, meaning its form (though perhaps it is if by the substance of a thing we mean its matter). For, just as the notion of number consists in something determinate to which nothing can be added or subtracted (as was said above) so does the notion of form.³⁷⁷

The idea here seems to be that a substantial form, like a number, cannot itself undergo any intrinsic change while remaining what it is. As Aquinas puts it elsewhere, "every difference with respect to substantial form varies the species."³⁷⁸ From this analogy we may conclude that, according to Aquinas, the way in which a substantial form is immutable, or not subject to change, is analogous to the way in which any particular number is immutable, or not subject to change: any addition or subtraction to it causes it to cease to exist and to be replaced by something completely new. What I think the fire analogy and the number analogy together show us is that, according to Aquinas, it is *because* the substantial form of a thing is not subject to change that it can be said to persist through time, and to ground the persistence over time of the material substance of which it is a part, despite various changes in that substance's material parts. And so, in this case, I think that we learn something very important about substantial form from the analogies that Aquinas uses.

In addition to these various positive analogies for substantial form, Aquinas also makes use of some important contrasting analogies, or disanalogies. These disanalogies help us to see what a substantial is not like, and what its role and behavior must be distinguished from. In his

³⁷⁷ Aquinas, *In Met.*, B. 8, L. 3, 1727 [*sicut numerus non suscipit magis aut minus, ita nec substantia quae dicitur secundum speciem, licet forte illa quae dicitur secundum materiam. Sicut enim ratio numeri in aliquo determinato consistit, cui non est addere nec subtrahere, ut dictum est, ita et ratio formae*]. See also: Aquinas, *DME*; Aquinas, *QQ*, I, Q. 4, A. 1, Ad. 3.

³⁷⁸ Aquinas, *DME* [*omnis differentia secundum formam substantialem variat speciem*].

Quaestiones disputatae de anima, a passage considered briefly in section 3.2 above, Aquinas explains that

The form of a house, like the forms of other artifacts, is an accidental form. Hence, it does not give existence and species to the whole and to each of the parts. Such a whole is not one thing absolutely, but by mere aggregation. The soul, however, is the substantial form of the body, giving existence and species to the whole and to each of the parts. And the sort of whole constituted from these parts is one thing absolutely. Hence, there is no similarity.³⁷⁹

In other places, Aquinas makes a similar contrast between a substantial form and the arrangement of a pile of stones.³⁸⁰ From this analogy, which serves as a running contrast between substantial and accidental forms throughout Aquinas's works, we may conclude that, according to Aquinas, the way in which a substantial form is the form of some particular matter is disanalogous to the way in which the form of a house is the form of some particular bricks and stones. The form of a house is not the cause of the existence of the parts of a house – it is merely the re-arrangement or ordering of some already existing material substances. A substantial form, on the other hand, is the cause of the existence of the parts of a substance. That the parts of a composite substance are enformed by that composite's substantial form is the reason that such parts exist and the reason that they are the kind of thing that they are.

Another contrasting analogy that informs us about the way in which the substantial form of a thing can and cannot be said to act on its matter is the pilot or sailor analogy. Speaking of the human soul as a substantial form, Aquinas explains that,

Plato held that the human soul not only subsists through itself but that it also has in itself the complete nature of the species. For he held that the whole nature of the species existed in the soul, saying that a human being is not some composite of soul and body but

³⁷⁹ Aquinas, *QDA*, Q. 1, A. 10, Ad. 16 [*forma domus, sicut et aliae formae artificiales, est forma accidentalis: unde non dat esse et speciem toti et cuilibet parti; neque totum est unum simpliciter, sed unum aggregatione. Anima autem est forma substantialis corporis, dans esse et speciem toti et partibus; et totum ex partibus constitutum est unum simpliciter; unde non est simile*]. See also: Aquinas, *ST*, I, Q. 76, A. 8, Co.; Aquinas, *ST*, III, Q. 2, A. 1, Co.; Aquinas, *SCG*, II, C. 72, N. 3; Aquinas, *QDA*, Q. 1, A. 10, Co.; Aquinas, *QDSC*, Q. 1, A. 4, Ad. 4; Aquinas, *DEE*, Ch. 1.

³⁸⁰ See, for example: Aquinas, *ST*, III, Q. 2, A. 1, Co.

a soul coming to a body such that the relationship between the soul and the body is like the relationship between a sailor and his ship, or like a clothed person and his clothes. But this opinion cannot stand. For it is clear that that which gives life to the body is the soul. Moreover, for living things, to live is to exist. The soul is, then, that by which the human body has actual existence. Moreover, the sort of thing that gives actual existence is a form. Therefore the soul of the human body is a form. Thus, if the soul were in the body like a sailor is in his ship, it would not give to the body its species, nor would it give to any of the parts their species. But the contrary appears to be the case, from the fact that when the soul recedes, each of the parts of the body does not retain its former name, except in an equivocal sense.³⁸¹

On Aquinas's view, then, substantial forms do not act on their matter like a pilot or sailor acts on his ship. Not even the human soul, which is the most "thing-like" of those substantial forms that inhere in prime matter, can be said to act on the human body in this way. We might say, then, that, according to Aquinas, the way in which a substantial form moves or interacts with its matter is importantly disanalogous to the way in which a sailor moves his ship or the way in which a human being moves the clothes that she is wearing. A sailor moves his ship as a separately existing thing and is the efficient cause of his ship's movement. A substantial form moves its matter as the actuality of that matter, and is the formal cause of the matter's movement.

One final contrasting analogy that I would like to consider here is Aquinas's comparison between a point and a substantial form in terms of their simplicity. As we have seen, Aquinas holds that a substantial form is simple in the sense that it lacks quantitative parts. We have also seen that he holds that a substantial form is immutable, or not subject to change, in the sense that nothing can be added to, or subtracted from, it. But as I briefly mentioned in section 3.4 above,

³⁸¹ Aquinas, *QDA*, Q. 1, A. 1, Co. [*posuit Plato, quod anima humana non solum per se subsisteret, sed quod etiam haberet in se completam naturam speciei. Ponebat enim totam naturam speciei in anima esse, dicens hominem non esse aliquid compositum ex anima et corpore, sed animam corpori advenientem; ut sit comparatio animae ad corpus sicut nautae ad navem, vel sicuti induti ad vestem. —Sed haec opinio stare non potest. Manifestum est enim id quo vivit corpus, animam esse, vivere autem est esse viventium: anima igitur est quo corpus humanum habet esse actu. Huiusmodi autem forma est. Est igitur anima humana corporis forma. Ita si anima esset in corpore sicut nauta in navi, non daret speciem corpori, neque partibus eius; cuius contrarium apparet ex hoc quod recedente anima, singulae partes non retinent pristinum nomen nisi aequivoce*]. See also: Aquinas, *ST*, Supp., Q. 75, A. 1, Co.; Aquinas, *QDA*, Q. 1, A. 11, Co.; Aquinas, *QDSC*, Q. 1, A. 2, Co.; Aquinas, *DUI*, Ch. 1; Aquinas, *DUI*, Ch. 3; Aquinas, *In DA*, B. 2, L. 2, 243; Aquinas, *SCG*, I, C. 26, N. 13; Aquinas, *SCG*, II, C. 57, N. 2-5; Aquinas, *QDPD*, Q. 5, A. 10, Co.

there is more than one way to lack quantitative parts. As Aquinas explains in his disputed questions on the soul,

The simplicity of the soul and the simplicity of an angel should not be understood in the same way as the simplicity of a point, which has a determinate location in a continuum, and from the fact that it is simple is not in different parts of the continuum at the same time. An angel and a soul are called simple in that they are altogether lacking in quantity, and therefore are not located in a continuum except by contact of power. Hence, any whole that is contacted by the power of an angel is related to that angel, which is not united to it as a form, as one single place. And any whole that contacted by the power of the soul is related to the soul, to which it is united as a form, as one single perfectible whole. And just as the entire angel is present to every part of the place at which it is located, so also the soul is present to every part of the perfectible whole at which it is located.³⁸²

From this analogy we may conclude that, according to Aquinas, the way in which a substantial form is simple is disanalogous to the way in which a point is simple: a point has no quantitative parts because it occupies the smallest possible quantity; a substantial form is simple because it lacks quantity altogether.

In summary, Aquinas thinks that a substantial form is analogous, in certain ways, to each of the following:

the shape or figure of a statue
an impression or seal in wax
heat in that which is hot
stillness in the air
calm in the sea
the “to-be-an-axe” of an axe
sight in an eye

³⁸² Aquinas, *QDA*, Q. 1, A. 10, Ad. 18 [*simplicitas animae et Angeli non est existimanda ad modum simplicitatis puncti, quod habet determinatum situm in continuo; et ideo quod simplex est, non potest esse simul in diversis partibus continui. Sed Angelus et anima dicuntur simplicia per hoc quod omnino carent quantitate; et ideo non applicantur ad continuum nisi per contactum virtutis. Unde totum illud quod virtute Angeli contingitur, respondet Angelo, qui non unitur ut forma, ut locus unus; et animae, quae unitur ut forma, ut perfectibile unum. Et sicut Angelus est in qualibet parte sui loci totus, ita et anima in qualibet parte sui perfectibilis, tota*]. See also: Aquinas, *SCG*, II, C. 72, N. 4; Aquinas, *QDSC*, Q. 1, A. 2, Ad. 16. At *SCG*, III, C. 226, N. 10, Aquinas also contrasts the simplicity of God with that of a point.

the form or species of a burning fire
the form of a running river
the form of a shifting populace
a number

He also thinks that a substantial form is disanalogous, in certain ways, to each of these things:

the form of a house
the arrangement of a pile of stones
a sailor piloting a ship
a human being wearing her clothes
a point

Now, almost all of the features or roles of substantial form to which these analogies point us are features or roles of substantial form already revealed to us in other passages. And, indeed, almost all of them are features or roles of substantial form discussed in sections 3.2-3.5 above. But what these analogies provide for us are helpful illustrations of these important features and roles, which serve to further elucidate Aquinas's own conception of substantial form. Moving forward, these analogies also serve as an additional set of interpretive constraints. Any attempt to fill out or expand Aquinas's ontology of substantial form should at least preserve the insights of each of these analogies. Moreover, a successful interpretation of Aquinas on substantial form would, ideally, shed light on why Aquinas chose the particular analogies that he did. Any conception of substantial form that brings us too close to those things that Aquinas explicitly contrasts to substantial form is a less preferable interpretation of Aquinas, all other things being equal.

3.7 Negations

In addition to the various functional characterizations that Aquinas gives of substantial form, and the various analogies that serve to reveal certain aspects of its nature, we can also learn much about Aquinas's conception of substantial form from what sorts of things he thinks that a

substantial form is not. According to Aquinas, in Aristotle's ten-category ontology, substantial form falls under the category of substance. A substantial form is not itself a complete substance, a proper member of the category, but it is an essential part or principle of a complete substance, and so it falls under the category of substance "by reduction."³⁸³ Importantly, from the fact that substantial form falls under the category of substance, it also follows that a substantial form is not a member of any of the nine accidental categories. For, nothing can be both a substance (or an essential principle of a substance) and an accident.³⁸⁴ On Aquinas's view, then, a substantial form is not any kind of quantity, quality, relation, place, time, position, state, action, or passion. Moreover, with respect to Aristotle's bifurcation of reality into potency and act, substantial form falls on the side of act. As a result, a substantial form is also not any kind of potency or power. Finally, according to Aquinas, the substantial form of a thing is not to be identified with that thing's *esse* or its "act of existence". A thing's *esse* or act of existence is said to "accompany" or "belong to" its substantial form, and so a thing is said to receive its existence from a substantial form, but Aquinas is clear that these are two different things.³⁸⁵

There are, then, three key entities in Aquinas's ontology with which substantial form must not be identified: a substantial form must not be identified with any kind of accident, nor with any kind of potency or power, nor with a thing's *esse*/act of existence. But what exactly do these three negations rule out? And what do they tell us about the nature of substantial form? In what follows, I will first consider each of these three categories of being in more detail, so as to more precisely enumerate the various types of entities that Aquinas means to preclude from being identified with substantial form. I will then consider the implications of these findings for

³⁸³ See, for example, Aquinas, *DEE*, Ch. 6; Aquinas, *QDA*, A. 1, Ad. 13; Aquinas, *QDA*, A. 2, Ad. 10; Aquinas, *QDV*, Q. 27, A. 1, Ad. 8; Aquinas, *In Sent.*, B. 1, D. 28, Q. 1, A. 1, Ad. 3.

³⁸⁴ Aquinas, *QDPD*, Q. 3, A. 9, Ad. 9.

³⁸⁵ See, for example, Aquinas, *CT*, B. 1, 74; Aquinas, *SCG*, II, C. 54, N. 4.

contemporary approaches to substantial form. I will argue that, based on the present investigation, Aquinas must be interpreted as rejecting many, if not all, of the conceptions of substantial form outlined in previous chapters, including those held by structural hylomorphists. I will also consider some of the arguments that Aquinas gives for rejecting such views.

In Chapter Six of his *Categories* and Book Five, Chapter Thirteen of his *Metaphysics*, Aristotle describes two kinds of quantities.³⁸⁶ There are discrete quantities, which are quantities according to number, and there are continuous quantities, which are quantities according to measure. The discrete quantity of a thing tells us how many distinct parts it has. The continuous quantity tells us the extension of that thing in space or time. In saying, then, that substantial form falls under the category of substance, one thing that Aquinas means to say is that a substantial form is not a measure of number or extension.

In Chapter eight of his *Categories*, Aristotle also describes four kinds of qualities.³⁸⁷ First, there are states and conditions. Knowledge, for example, is, in some sense, a state, as are all of the virtues or habits of a thing. And conditions are like states, only shorter and less stable. Second, there are powers and capacities. The difference between a state or condition and a power or capacity is that a power or capacity is that which a thing has naturally, or by birth, whereas a state or condition is something that it gains later on. For example, a person can have a healthy disposition by nature, or can be naturally gifted with athletic ability. In these cases the healthy disposition or the athletic ability are powers or capacities. Third, there are affective qualities and affections. Affective qualities and affections are the sensible qualities of a thing, the features that we can see, hear, touch, taste, or smell. For example, the color of a thing, or the sound that it

³⁸⁶ Aristotle, J. L. Akkrill (trans.), *Categories*, in Jonathan Barnes (ed.), *The Complete Works of Aristotle*, Vol. 1 (Princeton, NJ: Princeton University Press, 1984): Ch. 6; Aristotle, W. D. Ross (trans), *Metaphysics*, in Jonathan Barnes (ed.), *The Complete Works of Aristotle*, Vol. 2 (Princeton, NJ: Princeton University Press, 1984): B. 5, Ch. 13.

³⁸⁷ Aristotle, *Categories*, Ch. 8.

makes, are affective qualities. Finally, there is the shape, figure, or “external form” of a thing, such as the shape or figure of a statue.

In Book Five, Chapter 4teen, of the *Metaphysics*, Aristotle gives a slightly different list of the various kinds of quality.³⁸⁸ There he includes “substantial quality”, which is any qualitative feature of a thing that refers to its specific difference, and he also omits the second kind of quality, powers or capacities. Despite these differences, however, Aquinas reads Aristotle as offering more or less the same account of quality in both the *Metaphysics* and the *Categories*.³⁸⁹ Moreover, Aquinas seems to accept this general category scheme in his own ontology, as he makes use of the same, or very similar, distinctions between kinds of quality throughout his works. For example, when discussing the nature of the soul’s powers, he explains that

If the powers of the soul are not the very essence of the soul (and it is clear that they are not other substances), it follows that they are accidents falling under one of the nine categories. For they are in the second species of quality, which is called natural power or natural impotence.³⁹⁰

In saying, then, that substantial form falls under the category of substance, Aquinas means to say that a substantial form is not a state, a condition, a power, a capacity, a shape, a figure, or any kind of affective quality.

Aristotle speaks of the category of relation in at least two places: Chapter Seven of the *Categories*, and Book Five, Chapter Fifteen of the *Metaphysics*.³⁹¹ The most general distinction that Aristotle makes between kinds of relations is between those that we might call “referring relations” and those that we might call “referred relations”. Referring relations are those in which some feature of a thing refers to some feature of some other thing. One kind of referring relation

³⁸⁸ Aristotle, *Metaphysics*, B. 5, Ch. 14.

³⁸⁹ Aquinas, *In Met.*, B. 5, L. 16.

³⁹⁰ Aquinas, *QDSC*, Q. 1, A. 11, Co. [*si potentiae animae non sunt ipsa essentia animae (et manifestum est quod non sunt aliae substantiae), sequitur quod sint accidentia in aliquo novem generum contenta. Sunt enim in secunda specie qualitatis, quae dicitur potentia vel impotentia naturalis*]. See also: Aquinas, *ST*, I, Q. 77, A. 1, Ad. 5.

³⁹¹ Aristotle, *Categories*, Ch. 7; Aristotle, *Metaphysics*, B. 5, Ch. 15.

is a numerical relation. Something can be twice as much as something else, or half its size, or equal to it in number or extension. Another kind of referring relation includes those relations pertaining to active and passive potencies, as well as operational relations. As Aquinas explains in his commentary on the relevant passage from Aristotle's *Metaphysics*,

Things of this sort [active and passive things] are related in two ways: In one way, with respect to their active and passive powers. And, in a second way, with respect to the actualization of their powers, the actualizations of which are action and passion. For example, that which can heat and that which can be heated are related to one another by virtue of their active and passive powers. For it is that which is hot that can heat and that which is capable of being heated that can become hot. And, furthermore, that which is heating and that which is heated, as well as that which is cutting and that which is cut, are said to be related to one another by virtue of the actualizations of their powers.³⁹²

According to both Aristotle and Aquinas, active and passive relations can also be indexed to times other than the present. For example, a man is a father insofar as he is, in the relevant sense, the active cause of his child's existence, and a father continues to have that relation to his child even long after he has ceased to actively cause his child's existence. Unlike referring relations, in which some feature of a thing refers to some feature of some other thing, referred relations are those in which some feature of a thing is referred to by some feature of some other thing.

Referred relations are present in cases in which one is seen, thought of, or known by, another.

However, the onset of a referred relation appears not, in all cases, to bring about an actual change in the referred entity. When I am thought of by someone else, nothing changes in me. In any event, in saying that substantial form falls under the category of substance, one further claim that Aquinas means to be making is that a substantial form is not a referring relation, a referred relation, or any other kind of relation between things.

³⁹² Aquinas, *In Met.*, B. 5, L. 17, 1023 [*huiusmodi relativa sunt relativa dupliciter. Uno modo secundum potentiam activam et passivam; et secundo modo secundum actus harum potentiarum, qui sunt agere et pati; sicut calefactivum dicitur ad calefactibile secundum potentiam activam et passivam. Nam calefactum est, quod potest calefacere; calefactibile vero, quod potest calefieri. Calefaciens autem ad calefactum, et secans ad id quod secatur, dicuntur relative secundum actus praedictarum potentiarum*].

Quantity, quality, and relation are the three main categories of accidents recognized by Aristotle and Aquinas. But there are six other categories as well.³⁹³ Place, for instance, designates where a thing is located in space. Time designates where a thing is located in time, or when that thing may be said to exist. Position, like place, refers to a thing's location in space. The difference between position and place is that place refers to the way in which a thing is located in space as a whole, with respect to other wholes, whereas position refers to the way in which the parts of a thing are located in space, with respect to the other parts. Position, then, pertains to the order or spatial arrangement of a thing's parts.³⁹⁴ Standard examples of this genus of accident include "lying" or "sitting". Socrates, as a whole, may be said to occupy (roughly) the same place with regard to other wholes whether he is sitting or lying down, but in each case his parts occupy different places with respect to one another; the arrangement of those parts has changed. State (in Latin, *habitus*), which is not to be confused with the state or condition that falls under the genus of quality, refers to the way in which a thing is ornamented. For example, a thing can be clothed, or shod, or armed. This accident typically applies only to human beings, but Aquinas also recognizes cases in which it might apply to other animals as well.³⁹⁵ Action refers to the accident that is present in a thing in cases in which that thing is the principle or cause of something's being brought about. When a thing cuts or burns something else, for example, there is an accident, cutting or burning that is present in it. Passion refers to the accident that is present in a thing in cases in which a thing is the terminus of an action, cases in which a thing may be said to be the recipient of an action or to undergo some change from the outside. When a thing is

³⁹³ Aristotle only covers quantity, quality, and relation in Book 5 of his *Metaphysics*, but he discusses the other six categories of accidents in his *Categories*, Chs. 4, 6-9. Aquinas gives his own derivation and description of the accidental categories in at least two places: *In Phy.*, B. 3, L. 5, 322-323, and *In Met.*, B. 5, L. 9, 892. My own discussion here follows Aquinas's treatment in those passages.

³⁹⁴ Aristotle, *Categories*, Ch. 7; Aquinas, *In Phy.*, B. 3, L. 5, 322; Aquinas, *In Met.*, B. 5, L. 9, 982.

³⁹⁵ Aquinas, *In Phy.*, B. 3, L. 5, 322.

cut or is burned, for example, there is an accident, being-cut or being-burned that is present in it. From the foregoing descriptions, we may conclude, then, that, in saying that substantial form falls under the category of substance, Aquinas also means to say that a substantial form is not a place, a time, an order or arrangement of parts, a *habitus*, an action, or a passion.

Aristotle's ten-category ontology is one of the primary means by which both Aristotle and Aquinas attempt to understand the fundamental nature of reality. But it is not the only ontological framework present in Aristotle's works. In *Metaphysics*, Book Five, Chapter Seven, Aristotle introduces a second way of partitioning reality: into potency and act, or potentiality and actuality.³⁹⁶ According to Aquinas, Aristotle's distinction between potency and act is not an alternative to his ten-category ontology, but a further division within each of those categories; the distinction between potency and act cuts across all of the ten categories of being. As Aquinas explains in his commentary on the relevant passage from Aristotle's *Metaphysics*, "for all of the aforementioned terms, which signify the ten categories, something is said to be in actuality and something in potentiality. And from this it follows that each category is divided with respect to actuality and potentiality."³⁹⁷ There is, then, for Aquinas, some entity or set of entities in each of Aristotle's categories that corresponds to potency, and some other entity or set of entities in each category that corresponds to act. However, as we have seen, there is also a particular species of accident that is typically designated as potency or power. Earlier we saw that the second species of quality includes the various powers and capacities of a thing. And so while we can speak of potency as being present in each of the nine accidental categories (inasmuch as members of each

³⁹⁶ Aristotle, *Metaphysics*, B. 5, Ch. 7. Aristotle also dedicates the entirety of Book IX of his *Metaphysics* to a more in-depth treatment of actuality and potentiality.

³⁹⁷ Aquinas, *In Met.*, B. 5, L. 9, 897 [*In omnibus enim praedictis terminis, quae significant decem praedicamenta, aliquid dicitur in actu, et aliquid in potentia. Et ex hoc accidit, quod unumquodque praedicamentum per actum et potentiam dividitur*].

category can be said to be possessed potentially by some substance or other), strictly speaking, potency, as an accident, is a certain type of quality, a power.

In the category of substance, the entity that corresponds to potency or potentiality is prime matter, which, as an essential part of a complete substance, falls under the category of substance “by reduction”. Indeed, Aquinas often characterizes prime matter as “pure potency” or “pure potentiality”, completely lacking in actuality.³⁹⁸ This stands in stark contrast to substantial form, which, according to Aquinas, is itself an act or actuality.³⁹⁹ Substantial form is said to be the act or actuality of the prime matter that serves as its complement, as well as the complete substance of which it is a part. What we learn, then, from Aquinas’s characterizations of potency and act is that, in saying that a substantial form falls on the side of act, Aquinas means to say that a substantial form is not prime matter, and that it is not a power or capacity.

According to Aquinas’s distinction between the essence of a thing and its existence, a distinction which is not obviously found in Aristotle, any individual substance can be understood as having two distinct components or aspects: there is the essence of a thing, which is its “what-it-is”, and there is the existence of a thing (sometimes referred to as its “act of existence”), which is its “that-it-is”.⁴⁰⁰ Aquinas’s distinction here is meant to capture the idea that, with the exception of God, no description of what a thing is entails the existence of that thing; something more must be “added” to the essence of that thing to produce an actually existing thing. Now, in the context of these sorts of discussions, Aquinas often speaks of all other things besides God as

³⁹⁸ Aquinas, *SCG*, I, Ch. 17, N. 7; Aquinas, *ST*, I, Q. 115, A. 1, Ad. 2.

³⁹⁹ See, for example: Aquinas, *DPN*, Ch. 1; Aquinas, *In DA*, B. 2, L. 1, 215, 222, 223, 229, 234; Aquinas, *ST*, I, Q. 75, A. 1, Co.; Aquinas, *ST*, I, Q. 75, A. 5, Co.; Aquinas, *ST*, I, Q. 75, A. 6, Co.; Aquinas, *ST*, I, Q. 76, A. 1, Co.; Aquinas, *ST*, I, Q. 76, A. 7, Co.; Aquinas, *ST*, I, Q. 76, A. 8, Co.; Aquinas, *ST*, I, Q. 77, A. 1, Co.; Aquinas, *In Met.*, B. 7, L. 2, 1278.

⁴⁰⁰ See, for example: Aquinas, *DEE*, Ch. 4; Aquinas, *QDSC*, A. 1, Co.; Aquinas, *In BDH*, Ch. 2; Aquinas, *In BT*, Q. 5, A. 4, Ad. 4; Aquinas, *ST*, I, Q. 50, A. 2, Ad. 3

being “composed” of both their essence and their existence.⁴⁰¹ And so there is some reason to believe that the existence of a thing is, for Aquinas, some further metaphysical part that it has.

As we have seen, the essence of a material substance is itself a composite entity. The essence of a material object is composed of its substantial form and its prime matter.⁴⁰² And so to say that there is some further metaphysical part of a thing added to its essence is to say that there is some further metaphysical part of a material substance distinct from its substantial form and its prime matter. On the alternative model of Aquinas’s general ontology outlined above, it is indeed true to say that a material substance has further metaphysical beyond its prime matter and substantial form. Its accidents are further metaphysical parts of it. Is the existence of a thing, then, an accident? Aquinas seems to hold that the existence of a thing is akin to an accident in that it is outside of its essence, but, strictly speaking, existence does not fall under any of the nine categories of accidents. In his *Quaestiones disputatae de potentia Dei*, for example, he says,

If we speak of substantial existence, then existence is not spoken of as an accident such that it is in the genus of accident (for it is the act of an essence), but through a certain likeness, since it is not part of an essence, just as an accident is not.⁴⁰³

Now, whether a thing’s existence or act of existence ultimately counts as an accident, and, moreover, whether it ultimately counts as a further metaphysical part of an individual substance, need not be conclusively settled here. The point to take home from this very brief discussion is that, whatever a thing’s existence or its act of existence amounts to, it is not to be identified with the substantial form itself. Aquinas is clear in this regard:

in substances composed of matter and form we find three things, namely matter, form, and existence, the principle of which is the form. For matter, from the fact that it receives

⁴⁰¹ See, for example: Aquinas, *DEE*, Ch. 4; Aquinas, *ST*, I, Q. 50, A. 2, Ad. 3; Aquinas, *In BT*, Q. 5, A. 4, Ad. 4.

⁴⁰² See, for example: Section 2.2.2 above.

⁴⁰³ Aquinas, *QDPD*, Q. 5, A. 4, Ad. 3 [*quod esse non dicitur accidens quod sit in genere accidentis, si loquamur de esse substantiae (est enim actus essentiae), sed per quamdam similitudinem: quia non est pars essentiae, sicut nec accidens*]. See also: Aquinas, *In Met.*, B. 4, L. 2, 558; Aquinas, *QQ*, 2, Q. 2, A. 1, Ad. 2; Aquinas, *In Sent.*, B. I, D. 8, Q. 2, Expositio.

a form, participates in its existence. Thus existence follows from the form. Nevertheless, the form is not the existence itself, since it is the principle of that existence.⁴⁰⁴

And so, in saying that a substantial form is a constituent of a thing's essence, Aquinas also means to say that a substantial form is not an act of existence.

The foregoing investigation can be seen to have some important implications for contemporary approaches to substantial form. As I will argue below, I think that the three negations outlined above entail that Aquinas must be interpreted as rejecting many, if not all, of the conceptions of substantial form discussed in previous chapters.

First, from the fact that, on Aquinas's view, substantial form falls under the category of substance, it follows that he must be interpreted as rejecting the versions of Neo-Aristotelian structuralhylomorphism according to which the form of a material object is a certain complex or polyadic relation that holds between its material constituents. And this is so for two reasons. First, since substantial form falls under the category of substance, it follows that it is in no way identical to, or entirely composed of, any accident or accidents, including members of the category of relation. Second, Aquinas does not even seem to recognize the existence of complex or polyadic relations.⁴⁰⁵ As we have seen, there are referring relations, and there are referred relations, but there are no relations "between" things, as it were. On Aquinas's view, a relation is a directedness of a thing to some other thing, and so is one-directional, and located within the

⁴⁰⁴ Aquinas, *QDA*, Q. 1, A. 6, Co. [*In substantiis enim ex materia et forma compositis tria invenimus, scilicet materiam et formam et ipsum esse. Cuius quidem principium est forma; nam materia ex hoc quod recipit formam, participat esse. Sic igitur esse consequitur ipsam formam. Nec tamen forma est suum esse, cum sit eius principium*]. See also: Aquinas, *CT*, B. 1, 111; Aquinas, *SCG*, I, C. 27, N. 3; Aquinas, *SCG*, II, C. 54, N. 4.

⁴⁰⁵ See, for example, Jeffrey Brower's treatment of Aquinas's views on relations in his "Medieval Theories of Relations", in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, Winter 2015 Edition, available at: <http://plato.stanford.edu/archives/win2015/entries/relations-medieval/>, and his "Aristotelian vs. Contemporary Perspectives on Relations" in Anna Marmodoro and David Yates (eds.), *The Metaphysics of Relations* (Oxford: Oxford University Press, 2016): pp. 36-54. According to Brower, very few, if any, medieval philosophers recognized the existence of polyadic properties.

referring thing. Thus, Aquinas must be interpreted as rejecting the approach to form espoused by Fine and Johnston.

Second, from the fact that, on Aquinas's view, substantial form falls under the category of substance, it would also seem to follow that he must be interpreted as rejecting the versions of Neo-Aristotelian structuralhylomorphism according to which the form of a material object is a certain structure that is instantiated by, or realized in, its material constituents. And this is so for two reasons. First, since a substantial form falls under the category of substance, it follows that it is in no way identical to, or entirely composed of, an accident or accidents, including the arrangements or orderings of parts that fall under the category of position. Second, Aquinas also does not think that an arrangement or ordering of parts preserves the role of substantial form as the ground of existence for the constituent parts of a material substance. This sort of reasoning is perhaps clearest in the following passage from Aquinas's treatise on human persons featured in section 3.2 above:

The substantial form is the perfection not only of the whole, but of each the parts. For, since a whole consists of parts, a form of the whole which does not give existence to the individual parts of the body is a form of composition and order, like the form of a house, and such a form is an accidental form. But the soul is a substantial form. Hence, it must be the form and actuality of not only the whole but of each of the parts.⁴⁰⁶

On Aquinas's view, the fact that a substantial form must be said to give existence to all of the parts of an individual substance precludes it from being identified with a mere "composition and order", which, as we have seen, falls under the category of position. Thus, Aquinas must be interpreted as rejecting the approach to form espoused by Koslicki and Jaworski.

Third, from the fact that, on Aquinas's view, substantial form falls under the categories of substance and act, it also follows that he must be interpreted as rejecting versions of hylomorphism according to which the form of a material object is a certain power or capacity.

⁴⁰⁶ Aquinas, *ST*, I, Q. 76, A. 8, Co.

And this is so for two reasons. First, since substantial form falls under the category of substance, it follows that it is in no way identical to, or entirely composed of, an accident or accidents, including the powers and capacities that fall under the second species of the genus of quality. Second, Aquinas also thinks that the fact that substantial form is an act precludes it from being identified with any kind of potency or power. This sort of reasoning is perhaps clearest in the following passage from, once again, his treatise on human persons:

The soul is an act according to its own essence. If therefore the essence of a soul were the immediate principle of operation, then that which possesses a soul would always possess the operations of life actually, just as that which possesses a soul is always alive. For, insofar as it is a form, the soul is not an act ordered to another act, but the end of a generation. Hence that it is in potentiality to another act does not pertain to the soul according to its own essence, insofar as it is a form, but according to its own power. And thus the soul, inasmuch as it is the subject of its own power, is said to be the first act, ordered to a second act. Now, that which possesses a soul is not always actual with respect to the operations of life. Hence, even in the definition of soul it is said that it is the act of the body potentially having life, which nevertheless, does not exclude the soul. It remains, therefore, that the powers of the soul are not its essence. For nothing is in potentiality to a certain act insofar as it is an act.⁴⁰⁷

Now, here Aquinas argues for the conclusion that the soul cannot be identified with any of its powers. But the argument itself relies only on the claim that the soul is an act, a claim that can be equally made for all other substantial forms. Thus, Aquinas must be interpreted as rejecting the approach to form espoused by Jaworski, Rea, and Pasnau.⁴⁰⁸

⁴⁰⁷ Aquinas, *ST*, I, Q. 77, A. 1, Co. [*anima secundum suam essentiam est actus. Si ergo ipsa essentia animae esset immediatum operationis principium, semper habens animam actu haberet opera vitae; sicut semper habens animam actu est vivum. Non enim, inquantum est forma, est actus ordinatus ad ulteriorem actum, sed est ultimus terminus generationis. Unde quod sit in potentia adhuc ad alium actum, hoc non competit ei secundum suam essentiam, inquantum est forma; sed secundum suam potentiam. Et sic ipsa anima, secundum quod subest suae potentiae, dicitur actus primus, ordinatus ad actum secundum. Invenitur autem habens animam non semper esse in actu operum vitae. Unde etiam in definitione animae dicitur quod est actus corporis potentia vitam habentis, quae tamen potentia non abiicit animam. Relinquitur ergo quod essentia animae non est eius potentia. Nihil enim est in potentia secundum actum, inquantum est actus*]. See also: Aquinas, *QDSC*, Q. 1, A. 11, Co.; Aquinas, *QQ*, 10, Q. 3, A. 1, Co.; Aquinas, *QDA*, Q. 1, A. 12, Co.; Aquinas, *In Sent.*, B. I, D. 3, Q. 4, A. 2, Co.

⁴⁰⁸ One way to challenge my argument here would be to point to Aquinas's discussions of God's power. In Article One of Question One of his *Quaestiones disputatae de potentia Dei*, for example, Aquinas considers the objection that since God is pure act, he cannot be said to have any causal powers, because such powers are potencies. In his reply, Aquinas stipulates that God can be said to have various active powers, because such powers are not potencies but acts.

Furthermore, there is also some reason to think that since, on Aquinas's view, substantial form falls under the category of substance, he must also be interpreted as rejecting the versions of hylomorphism espoused by Stump and Brower. First, that Aquinas must be interpreted as rejecting a configurational approach to form would seem to follow from the fact that substantial form does not fall under the category of quality. And this is so for the following reason. As we have seen, the fourth species of quality recognized by Aristotle and Aquinas is shape, figure, or "external form". The Latin term here is '*figura*', which is often translated into English as 'configuration'.⁴⁰⁹ And Aquinas is clear that the shape or figure of a statue is importantly disanalogous to substantial form. In his commentary on Aristotle's use of the analogy of the bronze statue in the *Metaphysics*, for example, Aquinas remarks,

This distinction is exemplified in the case of artifacts, in which bronze is like matter, its shape [*figura*] is like the form of the species, that is, the form that gives it its species, and the statue is that which is composed from these. This example should not be taken as expressing the actual truth of the matter but as describing a relevant similarity. For, shape and the forms of other artifacts are not substantial forms, but accidental forms. But since the way in which shape is related to bronze in the case of artifacts is similar to the way in which substantial form is related to matter in the case of natural things, this example is used for the sake of demonstrating what is unknown through what is evident.⁴¹⁰

Now, given what Stump says about the role of substantial form with regard to the existence that it gives to the parts of a substance, it is also clear that Stump does not intend her conception of substantial form as configuration to be reducible to a conception of substantial form as shape or figure.⁴¹¹ In that case, perhaps what should be said here is that Stump's use of the term 'configuration' to characterize substantial form is misleading. Given that she does not want her

⁴⁰⁹ See, for example, Wippel, *Metaphysical Thought*, p. 219.

⁴¹⁰ Aquinas, *In Met.*, B. 7, L. 2, 1277 [*Exemplificat autem hic membra in artificialibus, in quibus aes est ut materia, figura ut forma speciei, idest dans speciem, statua compositum ex his. Quae quidem exemplificatio non est accipienda secundum veritatem, sed secundum similitudinem proportionis. Figura enim et aliae formae artificiales non sunt substantiae, sed accidentia quaedam. Sed quia hoc modo se habet figura ad aes in artificialibus, sicut forma substantialis ad materiam in naturalibus, pro tanto utitur hoc exemplo, ut demonstret ignotum per manifestum*].

⁴¹¹ See section 1. 4 above.

conception of substantial form to be reducible to a conception of substantial form as shape or figure, it is hard to see how describing substantial forms as configurations helps us to better understand Aquinas's view.

Second, that Aquinas must be interpreted as rejecting a conception of substantial form according to which the form of a thing is a certain sort of property or set of properties would seem to follow from the fact that substantial form does not fall under any of the categories of accidents. And this is so for the following reason. In various places, Aquinas distinguishes between the non-necessary, separable accidents of an individual substance and the necessary, proper accidents of an individual substance.⁴¹² The non-necessary, separable accidents of an individual substance are those accidents that an individual substance can lose while remaining what it is. Non-necessary, separable accidents are also those that the individual substance might have never have had. The necessary accidents, proper accidents, or natural properties, on the other hand, are the accidents of an individual substance that are the immediate effects of its substantial form. These accidents are not identical to the substantial form, but they are said to “flow from” the substantial form necessarily.⁴¹³ Since members of the same species have the same kind of substantial form, members of the same species also have the same proper accidents. And since, as we have seen, no individual substance can exist without its substantial form, it follows that it is never the case that an individual substance lacks its proper accidents. Now, the Latin term for a proper accident is ‘*proprium*’, and ‘*proprium*’ is typically translated into English as ‘property’, the same term that Brower uses for the substantial forms of substances other than angels and human persons. On Brower's model of Aquinas's general ontology, the substantial form of a material substance is one of its two metaphysical parts, the other being prime matter.

⁴¹² See, for example: Aquinas, *DEE*, Ch. 6; Aquinas *DPN*, Ch. 2; Aquinas, *ST*, I, Q. 3, A. 6, Co.; Aquinas, *ST*, I, Q. 77, A. 1, Ad. 5; Aquinas, *QDA*, Q. 1, A. 12, Ad. 7.

⁴¹³ See, for example: Aquinas, *ST*, I, Q. 77, A. 6.

And so, on Brower's interpretation, material substances have as one of their metaphysical parts a certain type of property. But since the proper accidents or properties that Aquinas discusses in various places fall under the category of accident, they would actually be found outside of material substances on Brower's model, inhering in the form/matter composite. Now, from Brower's own functional descriptions of the term 'property' as that which inheres in a subject, it is clear that he does not intend to refer to just the proper accidents discussed above.⁴¹⁴ In that case, perhaps what should be said here is that Brower's use of the term 'property' to designate the substantial forms of individual substances other than angels and human persons is misleading. Given that he does not want his conception of substantial form to be construed as a conception of substantial form as a proper accident, it is hard to see how describing substantial forms as properties helps us to understand Aquinas's view.

As a result of the foregoing investigation, it has been determined that the details of Aquinas's account of substantial form, and, in particular, his claims about what a substantial is not, set him apart from the approaches to substantial form that were considered in previous chapters. In many cases, his rejection of those sorts of views is a simple categorial move: Aquinas recognizes the existence of relations, structures, powers, configurations, and properties, but deliberately places substantial form in another category. However, Aquinas also has some important reasons to refrain from placing substantial form in some accidental category. On his view, no accident could play all of the roles that substantial form is posited to play. And so it is, in part, his functional characterizations of form that preclude certain contemporary approaches to understanding its nature.

⁴¹⁴ See section 2.2.1 above.

3.8 Conclusion: A Bare Metaphysical Posit?

In this chapter I have attempted to outline all of the major functional descriptions, analogies, and negations concerning substantial form that are present in the works of Thomas Aquinas. In section 3.2 I introduced three fundamental roles that substantial form plays in Aquinas's ontology: existence-giver, unity-giver, and identity-giver. In section 3.3 I introduced four features of substantial form that Aquinas derives from those fundamental roles: unicity, immediacy, virtual presence, and holo-meric location. In section 3.4 I outlined the various senses in which a substantial form can be said to be immutable, indivisible, and simple in Aquinas's ontology. In section 3.5 I investigated the role of substantial form with regard to the identity of individual substances over time. In section 3.6 I compiled all of the major analogies, both comparing and contrasting, that Aquinas uses to shed light on the nature of substantial form. And in section 3.7 I considered, in some detail, the various entities in Aquinas's ontology with which substantial form is not to be identified, as well as the implications of these denials for contemporary Neo-Aristotelian approaches.

As a result of the foregoing investigation, I hope to have adequately shown that substantial form plays a crucial role in Aquinas's ontology. The amount of work that his conception of substantial form is called upon to do in the construction of his hylomorphic worldview is astounding. However, even after having considered everything that Aquinas says about substantial form, it seems to me that we can still ask one further question of Aquinas's ontology: what *is* substantial form? What is it *in itself*? What sort of thing could possibly serve all of the functions that Aquinas means for substantial form to serve? The elegance and explanatory power of Aquinas's ontology provides us, I think, with ample motivation to try to make sense of his conception of substantial form. But after having considered all of the other

entities in Aquinas's ontology with which a substantial form is not to be identified, and all of the contemporary approaches to substantial form that his functional descriptions preclude, we are left with very few, if any, positive descriptions that would help us to better see what a substantial form actually is.

Now, perhaps that much is to be expected. There are passages in his corpus in which Aquinas seems to present an almost skeptical position concerning our knowledge of the intrinsic nature of substantial form. In such passages, he seems to say that we can only ever be acquainted with substantial form through its accidents – through what it does, through what it is like, through what it is not. Our imperfect intellects can never penetrate through to the very essence of substantial form. In Article One of Question 77 of the *Prima pars*, for example, when speaking of the relationship between the soul and its powers, Aquinas says that “Substantial forms, which are, in themselves, unknown to us, are made known through their accidents.”⁴¹⁵ And in his *Commentary on Aristotle's De Anima*, he remarks that “since the essential principles of things are unknown to us, it is therefore necessary that we make use of accidental differences in our specification of those essential principles.”⁴¹⁶ Perhaps, then, the best that we can do is to think of substantial form as a sort of “bare metaphysical posit” in Aquinas's ontology. On this interpretation, substantial form *just is* that which does all of the things, and is characterized in all of the ways, outlined in this chapter. There is nothing more to be said about the issue other than that there must be some one thing that fits these descriptions. On this sort of view, the nature of

⁴¹⁵ Aquinas, *ST*, I, Q. 77, A. 1, Ad. 7 [*Quia tamen formae substantiales, quae secundum se sunt nobis ignotae, innotescunt per accidentia*].

⁴¹⁶ Aquinas, *In DA*, B. 1, L. 1, 15 [*quia principia essentialia rerum sunt nobis ignota, ideo oportet quod utamur differentiis accidentalibus in designatione essentialium*]. For other “skeptical passages”, see, for example: Aquinas, *ST*, Q. 29, A. 1, Ad. 3; Aquinas, *DEE*, Ch. 5; Aquinas, *In DA*, B. 2, L. 2, 237; Aquinas, *In DA*, B. 2, L. 14, 420; Aquinas, *In PA*, B. 2, L. 14; Aquinas, *In Sent.*, B. 3, D. 35, Q. 2, A. 2, QC. 1, Co.

substantial form, like the nature of the “bare particular” posited by some contemporary metaphysicians, is completely exhausted by its functional role.

However, I think that we should find this “solution” unsatisfying. There ought to be *something* more that can be said about substantial form to help us better understand what it is in itself. That is, after all, what the conceptions of form as relation, structure, power, configuration or property proposed by contemporary Neo-Aristotelians aim to do: to offer insight into the nature of substantial form for those who are not already working within a hylomorphic ontology. It would be a disappointing consequence of Aquinas’s view if the most we could say in response to contemporary approaches to substantial form is that substantial form is surely not *that*. In Chapter 4 I would like to take up the task of searching for a better, deeper, more complete understanding of substantial form. And the two main goals here will be to offer an account that (1) improves upon structural hylomorphism, in that it allows us to avoid the three main objections that I introduced for that sort of view in Chapter 1, and (2) preserves most, if not all, of Aquinas’s characterizations of substantial form introduced in Chapters Two and Three. The hope is that such an account may not only better elucidate what Aquinas himself was getting at, but also provide us with an independently plausible alternative to the versions of hylomorphism currently on offer.

CHAPTER 4: HYLOENERGEISM

4.1. Contemporary Resources for Hyloenergeism: Species of Occurrence

In our everyday speech, various things are said to occur, happen, take place, be done, or go on. For example, I might read in the newspaper that a robbery occurred last night near campus, or I might describe to a friend what I hope to be doing in five years. If I were to come home from work and find a broken vase on the floor, I might wonder what happened while I was away. Or, during an especially dull presentation, I might quietly ask the person next to me how much longer she thinks the presentation will go on. Call those things that occur, happen, take place, are done, or go on, “occurrences” or “happenings”. By referring to these things as occurrences or happenings, I mean to distinguish them from members of other standard ontological categories, such as objects, stuffs, properties, powers, and relations.⁴¹⁷

Occurrences or happenings include things such as events, processes, states, accomplishments, achievements, performances, and activities. The category of occurrence or happening, then, is a sort of genus under which there may be several distinct species.⁴¹⁸ The most commonly recognized species of occurrence in contemporary analytic metaphysics is the category of event.⁴¹⁹ And the most popular account of events is the Property-Exemplification

⁴¹⁷ This is not to say that occurrences or happenings are not ultimately reducible to members of these other categories. I myself do not think that they are so reducible, but here I mean only to suggest that we can start by distinguishing occurrences or happenings from objects, stuffs, properties, powers, and relations in order to better understand their nature.

⁴¹⁸ For some (somewhat) recent attempts to enumerate all of the different species of occurrence or happening, see, for example: Zeno Vendler, *Linguistics in Philosophy* (Ithaca: Cornell University Press, 1967): Chapter 4; Anthony Kenny, *Action, Emotion and Will* (London: Routledge and Kegan Paul, 1963): Chapter 8; Alexander P. D. Mourelatos, “Events, Processes, and States”, *Linguistics and Philosophy*, Vol. 2, No. 3 (Jan., 1978): pp. 415-434; Toomas Karmo, “Occurrences and Pseudo-Occurrences”, *Synthese*, Vol. 52, No. 2 (Aug., 1982): pp. 299-312; Helen Steward, *The Ontology of Mind: Events, Processes, and States* (Oxford: Clarendon Press, 1997); Antony Galton, “The Ontology of States, Processes, and Events”, *Interdisciplinary Ontology*, Vol. 5, No. 1 (2012): pp. 35-45. Some of these taxonomies will be considered in more detail below.

⁴¹⁹ For some helpful overviews of contemporary approaches to the metaphysics of events, see, for example: Roberto Casati and Achille C. Varzi, “Events”, in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, Winter 2015 Edition, available at <http://plato.stanford.edu/archives/win2015/entries/events/>; Peter M. Simons, “Events”, in Michael J. Loux and Dean W. Zimmerman (eds.), *The Oxford Handbook of Metaphysics* (Oxford: Oxford University

Model championed by Jaegwon Kim.⁴²⁰ On Kim's model, an event is the exemplification of a property by an object at a time. So, for example, the event of Jim's feeling sore after last night's run consists in Jim's exemplifying the property of feeling sore at eight o'clock last night. Kim's model can also accommodate more complex cases. For example, some events might include two or more objects rather than just one. And the property exemplified might be a polyadic property (a relation) that holds between those objects, rather than a monadic property exemplified by one of them (or several of them jointly). The time at which the property is exemplified can also be as short as an instant or as long as any finite interval. For example, Jim might feel sore for just a moment after his run, or he might feel sore for the rest of the evening. According to Kim, events are necessarily comprised of all three of the aforementioned elements.⁴²¹ There is no event that lacks an object, property, or time. And any particular event is necessarily comprised of the particular object, the particular property, and the particular time of which it is in fact comprised. Any difference in the object, property, or time of an event would result in a new event.⁴²² Kim's events can also themselves serve as the objects for certain "higher-order" events.⁴²³ So, for example, Jim's feeling sore after last night's run can itself exemplify a certain intensity and so come to comprise the event of Jim's feeling extremely sore or the event of Jim's feeling mildly sore after last night's run.

Press, 2003): pp. 358-385; Lawrence Brian Lombard, "Ontologies of Events", in Cynthia Macdonald and Stephen Laurence (eds.), *Contemporary Readings in the Foundations of Metaphysics* (Oxford: Blackwell, 1998): pp. 277-294; as well as the articles included in Roberto Casati and Achille C. Varzi (eds.), *Events* (Aldershot: Dartmouth, 1996).

⁴²⁰ See, for example, Jaegwon Kim, "On the Psycho-Physical Identity Theory", *American Philosophical Quarterly*, Vol. 3, No. 3 (Jul., 1966): pp. 227-235; Jaegwon Kim, "Causation, Nomic Subsumption, and the Concept of an Event", *The Journal of Philosophy*, Vol. 70, No. 8 (Apr., 1973): pp. 217-236; Jaegwon Kim, "Events as Property Exemplifications", in Myles Brand and Douglas Walton (eds.), *Action Theory* (Dordrecht: D. Reidel, 1976): pp. 310-326.

⁴²¹ Kim, "Events as Property Exemplifications", p. 311.

⁴²² Kim does say that some events may be such that they could have happened slightly earlier or slightly later (see, for example, *Ibid.*, p. 321), but it is not clear how this statement can be made compatible with his identity conditions for events.

⁴²³ *Ibid.*, pp. 317-318.

A common objection to Kim's account of events is that his events are too static. Kim's events do not have any essential relation to change. Indeed, on Kim's account, an event can occur without any change taking place at all. As a result, Kim's events seem more like states, or facts, or states of affairs.⁴²⁴ Another leading account of events, one that does distinguish between events and states, is the Property-Exchange Model championed by Lawrence Lombard.⁴²⁵ On Lombard's model, an event is not merely the exemplification of a property by an object. Rather, an event is a *change* in an object with respect to one of its properties. And such a change necessarily involves the exemplification of two different properties by the same subject at different times. For an event to occur, on Lombard's account, an object must cease to exemplify a certain property and come to exemplify some other, contrary property.⁴²⁶ Now, because one object cannot exemplify two contrary properties at the same time, Lombard's events, unlike Kim's, cannot occur in an instant. There must be at least two moments in any of Lombard's events: one in which the object exemplifies a certain property, and another in which that same object exemplifies some other, contrary property.⁴²⁷ For example, when I boil a pot of water on the stove, the event of the water's boiling takes place over a period of about two minutes. At the beginning of this two minutes, the water exemplifies the property of being cold. At the end, that same water exemplifies a contrary property, the property of being hot. And the event of the water's boiling is the transition, the movement of that water from its initial state to a contrary state; it is the change that it undergoes while being heated.

⁴²⁴ See, for example, Stephen Mumford and Rani Anjum, *Getting Causes from Powers* (Oxford: Oxford University Press, 2011): p. 23; Lombard, "Ontologies of Events", p. 289.

⁴²⁵ Lawrence Brian Lombard, *Events: A Metaphysical Study* (London: Routledge and Kegan Paul, 1986); Lombard, "Ontologies of Events". Lombard does not actually call his model the Property-Exchange Model. Lombard does not give a name for his view at all. I am calling it the Property-Exchange Model so that the contrast with Kim's account is apparent.

⁴²⁶ Lombard, *Events*, pp. 111-114.

⁴²⁷ *Ibid.*, pp. 128-129.

A second, less commonly recognized, and certainly less often analyzed, species of occurrence is the category of process. Like the category of event, there are at least two main accounts of processes in the contemporary literature. According to the first account, a process is a series or succession of events united to one another by certain causal relations. Call this the Succession Model. On the Succession Model, a process is a complex occurrence, made up of smaller, more basic occurrences, which are taken to be events. Naturally, since processes are complex occurrences comprised of events on this model, there are two ways of understanding the composition of processes corresponding to the two accounts of events discussed above. If we accept the Property-Exemplification Model of events, then a process will be a series of property exemplifications by a certain object or set of objects at successive times. Whether, on a Property-Exemplification Model of processes, the relevant properties would need to be exemplified by the same object or objects at different times, or whether a single process can involve different objects at different times, may depend on how fine-grained the identities of processes are on this view. If processes necessarily involve a single subject, then the Property-Exemplification Model of processes might turn out to be very similar to the Property-Exchange Model of events.

If, on the other hand, we accept the Property-Exchange Model of events, then a process will be a series of changes in an object (or objects) with respect to its (or their) properties. Once again, whether, on a Property-Exchange model of processes, all of the relevant changes would need to be changes in the same object or objects, or whether a single process can involve changes in different objects at different times, will depend on how fine-grained the identities of processes are on this view. In either case, whether we accept a Property-Exemplification Model of events, or a Property-Exchange model of events, the Succession Model of processes is by far the most

popular account of processes.⁴²⁸ Even in our everyday speech, we seem to reserve the term ‘process’ for those occurrences that take place over a longer period of time and involve various sorts of changes in a single subject or in several succeeding objects related to one another in certain ways. There is, however, an alternative approach to understanding the nature of processes present in the contemporary literature. And this alternative approach is one that will play a very important role in the theory of material objects that I will introduce in section 4.3 below. As a result, in what follows, I would like to briefly rehearse the historical trajectory of this alternative approach, as well as some of the most important work that has been done to advance this approach more recently.

In Chapter 4 of his 1967 book, *Linguistics and Philosophy*, Zeno Vendler makes an important distinction between two species of occurrence: “activities” and “accomplishments”.⁴²⁹ Vendler describes the difference between these two species of occurrence as follows:

If it is true that someone has been running for half an hour, then it must be true that he has been running for every period within that half hour. But even if it is true that a runner has run a mile in four minutes, it cannot be true that he has run a mile in any period which is a real part of that time, although it remains true that he was running, or that he was engaged in running a mile, during any substretch of those four minutes. Similarly, in case I wrote a letter in an hour, I did not write it, say, in the first quarter of that hour. It appears, then, that running and its kind go on in time in a homogeneous way; any part of the process is of the same nature as the whole. Not so with running a mile or writing a letter; they also go on in time, but they proceed toward a terminus which is logically necessary to their being what they are... Thus we have arrived at the time schemata of two important species of verb. Let us call the first type, that of running, pushing a cart, and so forth, ‘activity terms,’ and the second type, that of running a mile, drawing a circle, and so forth, ‘accomplishment terms.’⁴³⁰

⁴²⁸ See, for example, the summary discussion of theories of causal processes in Phil Dowe, “Causal Processes”, in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, Fall 2008 Edition, available at <http://plato.stanford.edu/entries/causation-process/>.

⁴²⁹ Zeno Vendler, *Linguistics and Philosophy* (Ithaca, NY: Cornell University Press, 1967). Chapter Four is essentially a reprint of Vendler’s earlier “Verbs and Times”, *The Philosophical Review*, Vol. 66, No. 2 (Apr., 1957): pp. 143-160.

⁴³⁰ Vendler, *Linguistics and Philosophy*, pp. 101-102.

Vendler's distinction between activities and accomplishments points to two ways in which occurrences can be classified. The first pertains to their "homogeneity". A homogeneous occurrence is one in which the "parts" of that occurrence are of the same kind or nature as the "whole". The example that Vendler gives here is the activity of running. If someone is engaged in the activity of running for half an hour, then it is also true that that person is engaged in the activity of running during any substretch of that half hour. Activities, then, according to Vendler, are homogeneous occurrences.⁴³¹ A heterogeneous occurrence, on the other hand, is one in which the "parts" of that occurrence are not of the same kind or nature as the "whole". The example that Vendler gives here is the accomplishment of running a mile. If someone performs the accomplishment of running a mile in four minutes, then it is not true that that person performed that accomplishment during any substretch of that four minutes. The person may have performed a similar accomplishment during a substretch of that four minutes, such as running half a mile, but he or she did not perform the accomplishment of running a mile in anything less than the full extent that it took him or her to do so. Accomplishments, then, are heterogeneous occurrences.

⁴³¹ We might wonder here whether any occurrence could ever be *completely* homogeneous in the way that Vendler seems to suggest activities are, such that *any* way of dividing that occurrence would result in an occurrence of the same sort. If someone is engaged in the activity of running for half an hour, for example, we might wonder whether it is right to say that the activity of running is occurring at every second or every millisecond during that half hour, even if it is right to say that it is occurring at every minute. (For some examples of this sort of worry for Vendler's analysis of activities, see: Kathleen Gill, "On the Metaphysical Distinction between Processes and Events", *Canadian Journal of Philosophy*, Vol. 23, No. 3 (Sep., 1993): pp. 371-373; Thomas Crowther, "The Matter of Events", *The Review of Metaphysics*, Vol. 65, No. 1 (Sep., 2011): pp. 10-13.) I think that someone sympathetic to Vendler's analysis *could* insist that an activity like running is indeed occurring even at these very small intervals, even if it would be hard to tell precisely what is occurring during that very small interval if we were to inspect it in isolation from the rest. But he or she might also say that homogeneity is always a matter of degree, and activities are those occurrences that have at least a *high degree* of homogeneity, i.e., can be divided into *very small* "parts" that are of the same kind or nature as the "whole". As I will explain in more detail in section 4.3.3 below, I think it is plausible to suggest that some occurrences are, in fact, completely or maximally homogeneous, even if the category of activity includes some that are not.

A second, related way in which occurrences can be classified pertains to their “telicity”.⁴³² A “telic” occurrence is one that necessarily culminates in a particular end, and upon the realization of that end, ceases. The example that Vendler gives here is the accomplishment of writing a letter. If someone performs the accomplishment of writing a letter, then he or she has completed the relevant task, and the occurrence has now ceased. Accomplishments, then, are telic occurrences. An “atelic” occurrence, on the other hand, is one that does not necessarily culminate in any particular end, and so could, in principle, continue indefinitely. We might say that the activity of writing is an “atelic” occurrence. If someone has engaged in the activity of writing, then it does not follow that he or she has ceased performing that activity. Activities, then, are atelic occurrences.

In Chapter Eight of his 1963 book, *Action, Emotion, and Will*, Anthony Kenny makes a distinction between “activities” and “performances” that turns out to be very similar to Vendler’s distinction between activities and accomplishments.⁴³³ According to Kenny,

For some of these verbs, any statement of the form “A is ϕ ing” implies a statement of the form “A has not ϕ d”; for others it does not. For instance, if a man is building a house, he has not yet built it; if John is deciding whether to join the army, he has not yet decided to; if Mary is cutting the cake, she has not yet cut it. On the other hand, if I am living in Rome it does not follow that I have not lived in Rome; on the contrary, told that I am living in Rome you may at once ask me “And how long have you lived in Rome?” As with “live in Rome” so with “giggle”, “listen to”, “keep a secret”, “ponder on”: in all these cases, “A is ϕ ing” implies not “A has not ϕ d” but rather “A has ϕ d”. Where “A is ϕ ing” implies “A has not ϕ d” I shall call the verb a “performance-verb” and say that it stands for a performance; where “A is ϕ ing” implies rather “A has ϕ d” I shall call the verb an “activity-verb” and say that it stands for an activity.⁴³⁴

⁴³² It should be noted that Vendler himself does not use the language of “telicity” here. The terms “telic” and “atelic”, now standard in these sorts of discussions, were first introduced by Howard B. Garey in his “Verbal Aspect in French”, *Language*, Vol. 33, No. 2 (Apr.-Jun., 1957): pp. 91-110, at p. 106. It is clear from the passage above, however, that Vendler did have this sort of distinction in mind. For more on the distinction between telic and atelic occurrences, see, for example: Nicky Kroll, “Progressive Teleology”, *Philosophical Studies*, Vol. 172, No. 11 (Jan., 2015): pp. 2931-2954.

⁴³³ Kenny, *Action, Emotion, and Will*, pp. 171-186.

⁴³⁴ *Ibid.*, pp. 172-173. The verbs to which Kenny is referring in the first line are those that have continuous tenses.

The “test” that Kenny proposes here for determining whether an occurrence is an activity or a performance is based on whether during every moment in which the occurrence is occurring that same occurrence can also be said to have occurred. Kenny’s test, then, is another way of getting at the idea that certain occurrences (activities) are homogeneous in their composition, whereas other occurrences (here performances) are not. The activity of running, for example, a homogeneous occurrence, is such that if someone is running for half an hour, then it follows that he or she has also run at every point during that half hour. The accomplishment or performance of building a house, however, a heterogeneous occurrence, is such that if someone is building a house for a week, then it follows that he or she has not built that house at any point during that week.

What is perhaps most interesting about Kenny’s method of distinguishing between these two sorts of occurrences is that it comes very close to a method that Aristotle himself proposes for distinguishing between an “*energeia*” and a “*kinesis*” in Book IX of his *Metaphysics* (and elsewhere).⁴³⁵ The interpretive issues here are complex and controverted,⁴³⁶ but, roughly, according to Aristotle, an *energeia* is an occurrence that is “complete” at any moment during which it occurs. Though an *energeia* may continue, go on, or persist for a certain length of time, it does not *take* any time for the *energeia* to occur. During every moment in which an *energeia* is occurring, then, the *energeia* itself can be said to occur. As Aristotle famously remarks in his

⁴³⁵ See, for example, Aristotle, W. D. Ross (trans.), *Metaphysics*, in Jonathan Barnes (ed.), *The Complete Works of Aristotle*, Vol. 2 (Princeton, NJ: Princeton University Press, 1984): B. 9, Ch. 6; Aristotle, W. D. Ross (trans.), J. O. Urmson (rev.), *Nicomachean Ethics*, in Jonathan Barnes (ed.), *The Complete Works of Aristotle*, Vol. 2 (Princeton, NJ: Princeton University Press, 1984): B. 10, Ch. 4. For Aquinas’s commentary on the relevant passage from the *Nicomachean Ethics* (in which he appears to approve of Aristotle’s distinction), see his *In NE*, B. 10, L. 5. Unfortunately, the version of Aristotle’s *Metaphysics* that Aquinas had available to him, and the version upon which he wrote his own commentary, did not include the relevant passage from B. 9, Ch. 6. This makes it a bit more difficult to determine whether Aquinas really did subscribe to Aristotle’s *energeia/kinesis* distinction.

⁴³⁶ For a helpful overview of some of the relevant philosophical and textual controversies, see: Myles Fredric Burnyeat, “Kinesis vs. Energeia: A Much-Read Passage in (but not of) Aristotle’s *Metaphysics*”, in David Sedley (ed.), *Oxford Studies in Ancient Philosophy*, Vol. 34 (May, 2008): pp. 219-291.

Book IX of his *Metaphysics*, “at the same time we are seeing and have seen, are understanding and have understood, are thinking and have thought.”⁴³⁷ A *kinesis*, on the other hand, is, according to Aristotle, an occurrence that is complete “only in the whole time or at the final moment.”⁴³⁸ As a result, each of the parts of a *kinesis*, like each of the parts of an accomplishment or a performance, is of a different kind from the whole. Now, there may ultimately be some important differences between the activity/performance distinction championed by Vendler and Kenny and the *energeia/kinesis* distinction championed by Aristotle,⁴³⁹ but the similarities here are, nevertheless, striking.⁴⁴⁰ Aristotle’s *energeia/kinesis* distinction also serves as one of the key inspirations for the theory of material objects that I will introduce in section 4.3 below.

Both Vendler and Kenny restrict their analyses of activities and accomplishments or performances to the ways in which we speak of human actions. Later philosophers, however, have taken the Vendler/Kenny distinction to mark an important *ontological* distinction between species of occurrence in the world. In his seminal article “Events, Processes, and States”, for example, Alexander Mourelatos argues that Vendler and Kenny’s distinction between activities and accomplishments or performances can be understood as pointing to a distinction not just between two species of action, but between two species of occurrences: processes and events.⁴⁴¹ According to Mourelatos, events are those occurrences that are heterogeneous and telic, and when such occurrences are the result of agency, when they are actions, we call them accomplishments or performances. Processes, on the other hand, are those occurrences that are

⁴³⁷ Aristotle, *Metaphysics*, B. 9, Ch. 6.

⁴³⁸ Aristotle, *Nicomachean Ethics*, B. 10, Ch. 4.

⁴³⁹ See, for example: Alexander P. D. Mourelatos, “Aristotle’s Kinêsis/Energeia Distinction: A Marginal Note on Kathleen Gill’s Paper”, *Canadian Journal of Philosophy*, Vol. 23, No. 3 (Sep., 1993): pp. 385-388.

⁴⁴⁰ Kenny himself makes this connection at p. 173 of his *Action, Emotion and Will*.

⁴⁴¹ Mourelatos, “Events, Processes, and States”, pp. 422-424.

homogeneous and atelic, and when such occurrences are the result of agency we call them activities. What Mourelatos's analysis suggests, then, is that there is room for an account of processes that does not take them to be series or successions of events united to one another by causal relations. There is room for an account of processes, inspired by the work of Vendler and Kenny, according to which process is a distinct species of occurrence, one whose members are, unlike events, homogeneous and atelic.

More recently, two contemporary philosophers who have done the most to advance this alternative account of processes and the ontological distinction between events and processes upon which it is built are Helen Steward⁴⁴² and Rowland Stout⁴⁴³. And so to get a better sense of what precisely this alternative account of process amounts to, I would like to briefly survey their main contributions.

In her 2015 article, "What is a Continuant?," Steward describes the basic distinction between events and processes that serves as the foundation for her account of processes as follows:

there are two ways in which, when a substantial object changes, we can abstract to form the idea of an individual occurrent. We can abstract to form the idea of the change the object has undergone (or will undergo), that is, the event; or we can abstract instead to form the idea of the changing it is (or was or will be) undergoing, that is, the process.⁴⁴⁴

According to Steward, for any change that an object undergoes, there are actually two numerically distinct occurrences that take place: the event of the change and the process of the

⁴⁴² See: Helen Steward, *The Ontology of Mind: Events, Processes, and States*; Helen Steward, "Actions as Processes", *Philosophical Perspectives*, Vol. 26, No. 1 (Dec., 2012): pp. 373-388; Helen Steward, "Processes, Continuants, and Individuals", *Mind*, Vol. 122, No. 487 (Jul., 2013): pp. 781-812; Helen Steward, "What is a Continuant?", *Proceedings of the Aristotelian Society Supplementary Volume*, Vol. 89, No. 1 (Jun., 2015): pp. 109-123.

⁴⁴³ See: Rowland Stout, *Things That Happen Because They Should: A Teleological Approach to Action* (Oxford: Oxford University Press, 1996); Rowland Stout, "Processes", *Philosophy*, Vol. 72, No. 279 (Jan., 1997): pp. 19-27; Rowland Stout, "The Life of a Process", in Guy Debrock (ed.), *Process Pragmatism: Essays on a Quiet Philosophical Revolution* (New York: Rodopi, 2003): pp. 145-157; Rowland Stout, "The Category of Occurrent Continuants", *Mind*, Vol. 125, No. 497 (Jan., 2016): pp. 41-62.

⁴⁴⁴ Steward, "What is a Continuant?", p. 114.

changing. When I go for a walk, for example, two sorts of things can be said to take place, according to Steward: the event of my walk, and the process of walking in which I am engaged throughout. Likewise, when I drive to work in the morning, there is the drive, understood as the event that takes place, and there is the driving that I perform, understood as the process or activity in which I am engaged. And this same analysis extends to changes in non-agents as well. When a rock falls from a cliff, for example, there is the fall of the rock, and there is the falling that the rock is undergoing throughout.

Steward cites three main differences between events and processes in her work. First, events and processes are subject to different sorts of temporally-sensitive adjectives.⁴⁴⁵ A process, such as the humming of a computer for example, can be described as intermittent, continuous, or persistent, but, according to Steward, such things cannot be said of any particular event. Second, processes can change over time: processes can be the subjects of contrary properties at different times, whereas events, strictly speaking, cannot.⁴⁴⁶ As Steward explains in her 2015 article,

There are powerful arguments which suggest that events are not subjects of change at all. Suppose, for example, that a car is driven on a journey which begins at t_1 when the car sets off from point A and finishes at t_3 when the car arrives at point B. The car's journey might be smooth until time t_2 , while the car is on the motorway, and then bumpy between t_2 and t_3 , as the driver turns off onto poorly maintained minor roads. But was the whole event which was the car's journey between A and B first smooth and then bumpy? Plausibly, the answer to this question is 'No'. The whole event was never smooth at any point, and it was never bumpy either. The whole event which took place from t_1 to t_3 is in a certain important sense static—it has the properties it has, and there is nothing more to be said. The event itself does not change, any more than an apple changes which is redder on one side than on the other. It is merely that some of its parts—in this case, temporal, as opposed to spatial parts—possess properties which are different from those of certain other of its parts. That is all; what we have here is therefore not true change, but merely succession... although events do not change, there are occurrent entities that do. These are the processes—and the canonical way of referring to them is via expressions which are dependent on the progressive aspect of verb forms. Thus, for

⁴⁴⁵ Steward, *Ontology of Mind*, pp. 94-95, 96, 99. See also: Steward, "What is a Continuant?", pp. 119-120.

⁴⁴⁶ *Ibid.*, p. 94-95, 96.

example, although the whole event of the car's journey from A to B was not first smooth and then bumpy, there is nevertheless something with an occurrent nature which was first smooth and then bumpy—and this is the process of travelling which was going on throughout the whole period between t_1 and t_3 . The process is something which is continuously present throughout this whole period, and which... may change its properties over time. The process of travelling was indeed first smooth and then bumpy.⁴⁴⁷

Finally, although, according to Steward, both events and processes are extended in time and are thus made up of distinct temporal parts (on Steward's view, the possession of distinct temporal parts is what makes something an occurrence⁴⁴⁸), events possess each of their temporal parts essentially, whereas processes do not.⁴⁴⁹ What this means is that the identity of any particular event is essentially tied to its actual duration. No event could have been shorter or longer than it actually was. If the event had been cut short or extended in time, then it would have been an entirely different event. (This, it should be noted, does seem to agree with what Kim says about the identity conditions for events.⁴⁵⁰) Processes, however, do not possess each of their temporal parts essentially. Any process is such that it could have been cut short or extended in time while still being the very same process that it was. According to Steward, this is because processes are “modally robust” in a way that events are not.⁴⁵¹ Based on these three differences, then, Steward thinks that there is an ontological distinction to be made between events and processes, and it is importantly not one in which processes are comprised of events.

The basic distinction between events and processes that serves as the foundation for Stout's account of processes is very similar to the basic distinction that serves as the foundation

⁴⁴⁷ Steward, “What is a Continuant?”, pp. 113-114. See also: Steward, “Actions as Processes”, pp. 383-384. That events, strictly speaking, do not and cannot change precisely for the reasons that Steward cites, is a widely held view. See for example: F.I. Dretske, “Can Events Move?”, *Mind*, Vol. 76, No. 304 (Oct., 1967): pp. 479-492; P.M.S. Hacker, “Events and Objects in Spacetime”, *Mind*, Vol. 91, No. 361 (Jan., 1982): pp. 1-19; Lombard, *Events*, pp. 127-131.

⁴⁴⁸ Steward, “What is a Continuant?”, p. 121.

⁴⁴⁹ Steward, “Processes, Continuants, and Individuals”, pp. 792-793; Steward, “What is a Continuant?”, pp. 117-118, 121-122.

⁴⁵⁰ See my earlier discussion of Kim's account of events at p. 3 above.

⁴⁵¹ Steward, “Actions as Processes”, p. 383; Steward, “Processes, Continuants, and Individuals”, pp. 805-807.

of Steward's. In his 1996 book, *Things that Happen as They Should*, for example, Stout explains that

a process is what is described in answer to the question: "What is/was/will be happening?" An event, by contrast, is what is described in answer to the question: "What happened/will happen/will have happened?" So, the sentence: "A comet is hurtling into the sun," describes a process, whereas the sentence "A comet hurtled into the sun" describes an event.⁴⁵²

For Stout, as for Steward, though the distinction between an event and a process is revealed in the way in which we speak about such things, the difference between them is more than just a feature of our language. The distinction between an event and a process is an ontological distinction between two species of occurrence in the world. The main argument that Stout gives for thinking that there is a real, ontological distinction between events and processes is something that he calls the "Argument from the Possibility of Interrupting Processes".⁴⁵³ Here is a statement of the argument from *Things that Happen as They Should*:

we describe the decaying of an apple as a process – i.e. as something that is/was/will be happening. But sometimes we might also describe the decaying of the apple as an event – i.e. as something that has happened/will have happened, etc. We might say that the process of the apple decaying has been going on for over two weeks now. But we might also say that the event of the apple decaying was what spurred me into a study of biochemical reactions in fruit. Is the process of the apple decaying – what was happening – the same thing as the event of the apple decaying – what happened? I think that the answer is clearly, no. We want to say at one stage of the apple's decay that the very same process was going on as was going on at an earlier stage. This single process cannot be identified with the event of the apple decaying. For suppose that something interfered with the process so that the later stage never happened – perhaps the half-rotten apple was put into deep-freeze. This would not affect the identity of the process at the earlier stage before the interference. What was happening before the interference is not affected by whether or not the interference occurred. But the event, i.e. what happened, is affected by whether or not the apple is put into deep-freeze. The event that happened before the interference is not the same as the whole event without the interference. So the process and the event cannot be literally identical.⁴⁵⁴

⁴⁵² Stout, *Things that Happen as They Should*, p. 47.

⁴⁵³ *Ibid.*, p. 48-49; Stout, "Processes", pp. 21-22.

⁴⁵⁴ Stout, *Things that Happen as They Should*, pp. 48-49.

Here we see that Stout, too, takes processes to be “modally robust” in a way that events are not. In his example, the process of the apple decaying is not sensitive to whether it is interrupted, whereas the event of the apple’s decay depends for its existence and for its identity on its completion. Moreover, Stout, like Steward, also thinks that processes, unlike events, can change their properties over time.⁴⁵⁵ One and the same process of fighting can at one time be brutal and at other times can be somewhat mild.

As we have seen, while Steward does think that processes are unique among occurrences in that they are modally robust in the way specified above and can change their properties over time, she still thinks that they are extended in time and thus made up of distinct temporal parts. Stout, on the other hand, argues, from the fact that they are homogeneous, atelic, modally robust, and can change their properties over time, that processes should be understood as a uniquely *enduring* species of occurrence:

The claim is that at any one moment when a process is happening, what is happening is the whole process, not just part of it. In the Russellian account, which identifies a process with a certain kind of structure of stages, the stages must be thought of as temporal parts of the process. The process consists of these stages and extends over the duration of the structure. What is present at any one time then cannot be the whole process, because for the whole process to be present all its parts must be present, and the stages that have not yet happened are not present. The Aristotelian account, by contrast, does not identify a process with a structure of stages; and so there is no need in this account to think of its stages as temporal parts. At any one moment the process as a whole can be identified since its underlying nature can be identified. This allows one to think of the process as persisting through time rather than being extended in time. The stages of a process do not constitute it, but should be thought of rather as manifestations of the process happening.⁴⁵⁶

As is clear from this passage, Stout explicitly rejects a Succession Model of processes (here the “Russellian account”), according to which processes are comprised of smaller events or changes that take place over time. According to Stout, processes are not in any way comprised of

⁴⁵⁵ Stout, “The Life of a Process”, p. 151; Stout, “Occurrent Continuants”, p. 10.

⁴⁵⁶ Stout, *Things that Happen as They Should*, pp. 53-54. See also: Stout, “Processes”, pp. 24-26; Stout, “The Life of a Process”, pp. 152-153.

successive stages. For any given process, there will be stages *of* that process, but these stages are not to be construed as *parts* of the process. As Stout explains, these stages are *manifestations* of the process happening and temporal *parts* of the resultant *event*. Processes themselves are completely lacking in such temporal parts. They are, according to Stout, more like objects in that they are “wholly present” at every moment during which they exist or occur. What sets processes apart from events, then, is that a process can be said to *endure* through time, serving as the subject of different properties at different times, whereas an event can only be said to *perdure*, possessing different properties at different times by virtue of being composed of several different stages, each of which is the primary possessor of one of the relevant properties. As a result, Stout calls his processes “Occurrent Continuants”.⁴⁵⁷

There are, then, two competing models of processes present in the contemporary literature. There is the Succession Model, according to which a process is a series or succession of events united to one another by certain causal relations. And there is Stout’s model, according to which a process is a homogeneous, atelic, enduring occurrence. Call the latter model the Continuant Model of processes.⁴⁵⁸ This Continuant Model of processes, the model that Stout himself refers to as the “Aristotelian account”, is the model of processes that will play the most significant role in constructing the theory of material objects that I will introduce in section 4.3 below.

⁴⁵⁷ Thus the title of his 2016 paper. In his “The Life of a Process”, Stout calls them “dynamic continuants”.

⁴⁵⁸ Other proponents of the Continuant Model of processes include Antony Galton (“Experience and History: Processes and their Relation to Events”, *Journal of Logic and Computation*, Vol. 18, No. 3 (2008): pp. 323-340; Antony Galton and Riichiro Mizoguchi, “The Water Falls but the Waterfall does not Fall: New Perspectives on Objects, Processes and Events”, *Applied Ontology*, Vol. 4, No. 2 (2009): pp. 71-107) and David Charles (“Aristotle’s Processes”, in Mariska Leunissen (ed.), *Aristotle’s Physics: A Critical Guide* (Cambridge: Cambridge University Press, 2015): pp. 186-205.

4.2 Contemporary Resources for Hyloenergeism: Occurrence-Based Theories of Material Objects

4.2.1 Process Hyleism

In his short 1977 paper, “Disturbances”, Toomas Karmo briefly introduces a theory of material objects according to which at least some ostensibly composite material objects, such as streams, knots, and even organisms, are best understood not as sets, collections, or composites of the “smaller” material objects that may be said to give rise to them, but as “disturbances” that “migrate” through such entities:

A stream of water, e.g. the stream running down a rain-soaked windscreen, must be distinct from the water which it at any given moment happens to contain, for one and the same stream may at two distinct moments contain two distinct consignments of water. But if water and stream are distinct, then in what does that relation consist which we describe by saying that the one constitutes the other? The correct answer to this is perhaps that a stream is a species of disturbance, where a disturbance is definable as an object or entity found in some other object - not in the sense in which a letter may be found in an envelope, or a biscuit in a tin, but in the sense in which a knot may be in a rope, a wrinkle in a carpet, a hole in a perennial border, or a bulge in a cylinder... That which a disturbance is in is its medium; a stream is a disturbance in that total consignment of water which is now, has at any time in the past been, or will at any time in the future be found in it. The process which is the flowing of a stream may equally well be described as a stream’s migrating through a quantity of water, even though in an absolute sense the stream stays stationary and the water does the migrating... Streams are not alone in being constituted of distinct consignments of stuff at distinct instants in their careers. A living creature can be conceived of as a disturbance migrating through a consignment of organic chemicals, since the consignment of organic stuffs constituting a living thing one month is distinct from the consignment constituting it the next.⁴⁵⁹

According to Karmo, then, certain “composite” material objects are actually neither identical to, nor composed of, the “smaller” material objects that may be said to give rise to them; they are, instead, “disturbances” that occur “in” those “smaller” objects and travel through various other material objects throughout their careers. It is worth noting that, at the end of his paper, Karmo makes the further suggestion that something like a “disturbances” theory of material objects can, with some degree of plausibility, be attributed to Aristotle:

⁴⁵⁹ Toomas Karmo, “Disturbances”, *Analysis*, Vol. 37, No. 4 (Jun., 1977): pp. 147.

It is possible that this view of living creatures as disturbances was held by Aristotle. At any rate Aristotle mentions an object which we would call a disturbance while discussing substantiality in the *Metaphysics*: ‘...what is still weather? A stillness in a large expanse of air. The matter is the air, while the actuality and substance is the stillness’ (1043a22-24). He uses this same preposition ‘in’ in describing the relation of the form of a man to his flesh and bones (‘*to toionde eidos en taisde tais sarxi kai ostois*’, *Metaphysics* 1034a6), and explicitly compares living tissues with flowing water at *de Gen. et Corr.* 321b24-25. Finally, if Aristotle does not discuss the relation of streams as such to the water in them, he does at least suggest at *Topics* 127a3-8 that a wind is better defined as movement in air than as air in movement; and the parallel between wind and air on the one hand and stream and water on the other is fairly obvious.⁴⁶⁰

Karmo’s description of his own view is remarkably brief and largely undeveloped, but there are at least a few contemporary theories of material objects that have been greatly influenced by his proposal. In his 1995 article, “Theories of Masses and Problems of Constitution”, for example, Dean Zimmerman voices his own (tentative) support for Karmo’s account of material objects as disturbances, pointing out that such a view would actually resolve various problems related to the coincidence of distinct entities that plague other views.⁴⁶¹ As Zimmerman explains,

Other multiple-category theorists consign constituted objects to the category of event or process, and identify masses with enduring (non-event-like) objects to which these events ‘happen.’ No proposal along these lines has ever been worked out in great detail, but the basic idea is clear enough. Mereologically incontinent bodies are like waves and tornados - they are processes that ‘migrate through’ various masses of matter. The fact that processes are dependent entities - ‘accidents’ or ‘modifications’ of the things to which they happen - is supposed to dispel any air of mystery about how a process and its ‘substratum’ can be in the same place at the same time. After all, there is nothing mysterious about the fact that a wave can coincide with the water it presently modifies, or that a tornado can be in the same place as the masses of gas, liquid, and dust presently caught up in it. Although earlier stages of a wave or tornado may, for example, have caused the mass of stuff ‘in’ the wave or tornado to be where it is now, it still seems right to say that processes like these fill certain regions, weigh this or that amount, etc., entirely in virtue of the fact that the stuff now caught up in them takes up space or has a certain weight in a more primary sense. And if processes and masses belong to very

⁴⁶⁰ *Ibid.*, pp. 147-148.

⁴⁶¹ Dean W. Zimmerman, “Theories of Masses and Problems of Constitution”, *The Philosophical Review*, Vol. 104, No. 1 (Jan., 1995), pp. 53-110.

different ontological categories, it does not seem so strange that a process may outlive the mass through which it is presently passing, and vice versa.⁴⁶²

Later on, Zimmerman, like Karmo, suggests that such a view may in fact be the correct account of organisms:

we would not normally be inclined to regard our bodies as processes passing through some more basic medium - although, upon careful thought, the similarities between the activity of certain self-perpetuating events like tornados and hurricanes, on the one hand, and the 'homeodynamic' processes involved in biological life, on the other, might make us reconsider a facile dismissal of this last suggestion.⁴⁶³

From these remarks, we can see that Zimmerman further specifies Karmo's account in at least two ways. First, according to Zimmerman, Karmo's disturbances are best understood as "events" or "processes" that masses of matter undergo. This suggests that a disturbance theory of material objects is a dual-category theory: it recognizes both things (material objects or masses of matter) and occurrences (events or processes). Second, according to Zimmerman, disturbances are best understood as "accidents" or "modifications" of masses of matter. Thus, on Zimmerman's interpretation, disturbances are dependent entities: a disturbance is always a disturbance of or in some mass of matter or other. However, since they can "migrate" or "pass through" various masses of matter over time, it is clear that disturbances do not depend for their existence on any particular subject: the very same disturbance can be present in different masses of matter at different times.

As is evident from the first quotation from Zimmerman above, at the time of his writing, no one had developed a complete theory of material objects based on Karmo's disturbances. Recently, however, Mark Steen has offered some important contributions to this project. In a recent, unpublished article, Steen describes his Karmo-inspired view as follows:

⁴⁶² *Ibid.*, p. 91-92.

⁴⁶³ *Ibid.*, p. 92.

Very roughly, the view I will defend is as follows. I will be offering a dual-category ontology of objects. What I will call ‘genuine objects’ or ‘bare objects’ are masses or fusions of matter which cannot change their parts. What I will call ‘commonsense objects’ or ‘ordinary objects’ (e.g. tables, cats, rocks) are processes that the genuine objects undergo. So, a cat, for instance, is construed as a process of ‘catting’ that a mass of matter is undergoing. While genuine objects cannot change their parts, the commonsense objects can, in the sense that a succession of distinct masses of matter can successively be undergoing the same token process. A commonsense object stands to a genuine object like how a wave stands to the distinct portion of water that it passes through.⁴⁶⁴

According to Steen, then, commonsense or ordinary material objects, such as tables, cats, and rocks, are to be identified with the sorts of occurrences or processes that Karmo calls disturbances, whereas “genuine” material objects are to be identified with the underlying masses of matter that give rise to them. As Steen explains in the passage above, on his view, an ordinary object like a cat is actually a process of ‘catting’ that a series of masses of matter undergoes.

Steen’s process theory of material objects is, like Karmo’s, a dual-category theory: it recognizes both things (masses of matter) and occurrences (processes), neither of which is reducible to the other.⁴⁶⁵ Steen’s processes are, like Karmo’s disturbances, dependent entities: a process is always a process that some mass of matter or other is undergoing. There are, then, no “pure” or “absolute” processes.⁴⁶⁶ However, since processes can, like disturbances, “migrate” or

⁴⁶⁴ Mark Steen, “Bare Objects, Ordinary Objects, and Mereological Essentialism”, Unpublished Manuscript. See also: Mark Steen, “Stuff, Process, and Object: An Examination of Substance and its Alternatives”, Ph.D. Dissertation, Syracuse University, 2005, p. 227.

⁴⁶⁵ Steen, “Bare Objects”; Steen “Stuff, Process and Object”, pp. 50, 55.

⁴⁶⁶ For occurrence-based ontologies that are built on notions of pure or absolute processes, see, for example: C.D. Broad, *An Examination of McTaggart’s Philosophy*, Vol. 1 (Cambridge: Cambridge University Press, 1933); Alfred North Whitehead, *Process and Reality: An Essay in Cosmology* (New York: Macmillan, 1978); Wilfrid Sellars, “Naturalism and Process”, *The Monist*, Vol. 64, No. 1 (Jan., 1981): pp. 37-65; Nicholas Rescher, *Process Metaphysics* (Albany: State University of New York Press, 1995); Nicholas Rescher, *Process Philosophy: A Survey of Basic Issues* (Pittsburgh: University of Pittsburgh Press, 2001); Nicholas Rescher, *Process Philosophical Deliberations* (Frankfurt: Ontos Verlag, 2006); Johanna Seibt, “The Dynamic Constitution of Things”, in Jan Faye, Uwe Scheffler, Max Urchs (eds.), “Things, Facts and Events”, *Poznan Studies in the Philosophy of the Sciences and the Humanities*, Vol. 76 (2000) pp. 241-278; Johanna Seibt, “Free Process Theory: Towards a Typology of Processes”, *Axiomathes*, Vol. 14, No. 3 (Mar., 2004): pp. 23-57; Johanna Seibt, “Forms of Emergent Interaction in General Process Theory”, *Synthese*, Vol. 166, No. 3 (Feb., 2009): pp. 479–512; Johanna Seibt, “Process Philosophy”, in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, Spring 2016 Edition, available at <<http://plato.stanford.edu/archives/spr2016/entries/process-philosophy/>>. For Steen’s critique of pure process ontologies, see his “Stuff, Process and Object”, Chapter 3, section 3.

“pass through” various masses of matter over time, it is clear that processes do not depend for their existence on any particular subject: the very same process can be present in different masses of matter at different times.⁴⁶⁷

Steen’s main contribution to the disturbance theory of material objects is his conception of disturbances as processes. But what is a process exactly? Following Mourelatos, Steward, Stout, and others, Steen takes the term ‘process’ to pick out a unique species of occurrence or happening, one that is distinct from other species of occurrence, such as states, events, accomplishments, achievements, and performances. And, like Mourelatos, Steward, and Stout, Steen understands processes to be unlike other types of occurrences in that they are “atelic”, “extremely homogenous”, and necessarily involve change.⁴⁶⁸ Recall that, to say that a process is atelic is to say that it does not necessarily culminate in any particular end. Atelic occurrences are such that they could, in principle, continue indefinitely. Examples of atelic occurrences include: spinning, moving, laughing, growing, and running. Telic occurrences, in contrast, are occurrences that do necessarily culminate in a particular end, and, upon the achievement of that end, cease. Examples of telic occurrences include: finishing one’s taxes, giving birth, neutron decay, and snuffing a candle.

Recall also that to say that a process is homogenous is to say that, to some degree of granularity, each of its “parts” is of the same species as the whole. To say that a process is extremely homogenous is to say that, at some very high degree of granularity, each of its “parts” is of the same species as the whole. An example of an extremely homogenous occurrence is the flowing of a river or the falling of a rock: almost any spatial or temporal “part” of the flowing of

⁴⁶⁷ Presumably, for Steen, there will be some restrictions on the kinds of masses of matter that each kind of process can be present in (a process of catting cannot be present in a portion of water, for instance), but there may also be quite a bit of flexibility here.

⁴⁶⁸ *Ibid.*; Steen, “Stuff, Process and Object”, pp. 246-248;

a river is itself a flowing of the river, and almost any spatial or temporal “part” of the falling of a stone is itself a falling of the stone. Heterogeneous occurrences, in contrast, are occurrences the parts of which are not of the same species as the whole. An example of a heterogeneous occurrence is a wedding or a baseball game: no spatial or temporal part of a wedding is itself a wedding, and no spatial or temporal part of a baseball game is itself a baseball game. As we saw earlier, according to the alternative approach to understanding the nature of processes, the fact that processes are atelic and homogeneous is what sets them apart from events, which are both telic and heterogeneous.

Recall, finally, that to say that a process necessarily involves change is not necessarily to identify processes with changes. According to Steward, for instance, a process is a *chang-ing*, and, as a result, anything that is undergoing a process necessarily will have changed. The completed change, however, is the resultant event, not the process that the object was undergoing throughout. According to Steen, the fact that processes necessarily involve change in this way is what sets them apart from states, occurrences which do not involve change.

For Steen, processes are particulars.⁴⁶⁹ The running that I perform and the running that you perform are numerically distinct, as are the running that I perform today and the running that I perform tomorrow (assuming that at some point I stop running), however much these two processes are qualitatively alike. Note here that since processes can migrate or pass through different masses of matter, it is not the masses of matter that individuate them. Rather, it is their spatio-temporal location that does so.⁴⁷⁰

⁴⁶⁹ Steen, “Bare Objects”; Steen “Stuff, Process, and Object”, p. 249.

⁴⁷⁰ Does this mean that the identity of a process cannot admit of any spatial or temporal gaps? Steen does say that the identity of a process can be preserved over a temporal gap (see his “Bare Objects”; “Stuff, Process, and Object”, pp. 279-281), but whether it can also be preserved over a spatial gap is unclear.

From the fact that processes are atelic, extremely homogeneous, and particular, Steen, like Stout, draws the further conclusion that such processes, unlike other species of occurrences, are “continuants”, in that they endure through time and are wholly present at each moment of their existence.⁴⁷¹ This is perhaps the most controversial aspect of Steen’s theory of material objects. As noted above in my treatment of Stout’s Continuant Model of processes, events and other species of occurrences are typically taken to “perdure” through time, rather than endure, meaning that they are held to have distinct temporal parts at every moment that they exist.⁴⁷² But Steen, following Stout, is forthright about his commitments here:

processes of this circumscribed sort are three-dimensional entities that endure through time. They persist by being wholly present and sweeping through time, like objects, and unlike events, which are spread out in time with distinct temporal parts wholly present at distinct times.⁴⁷³

For Steen, then, ordinary material objects are atelic, extremely homogenous, enduring, token occurrences, or processes, which “migrate” or “pass through” various masses of matter over time. Steen calls this Stout, Karmo, and Zimmerman-inspired theory of material objects “process hyleism”.⁴⁷⁴ One final point worth noting here is that in his article Steen himself briefly considers a variant of process hyleism that could, with some degree of plausibility, be attributed to Aristotle:

There is an analogy here of Process Hyleism, which we could also call hyloenergeism, and Aristotelian hylomorphism. For Aristotle, a commonsense object is a composite of form and matter, or, rather, an enmattered form. Prime matter, or, *materia prima*, apart from any form, would be featureless. But, no matter is truly featureless, according to Aristotle, and always has some-form-or-other (but not necessarily the form that it does in

⁴⁷¹ Steen, “Bare Objects”; Steen, “Stuff, Process, and Object”, p. 250.

⁴⁷² See, for example, Peter M. Simons, “Continuants and Occurrents”, *Proceedings of the Aristotelian Society Supplementary Volume*, Vol. 74, No. 1 (Jul., 2000), pp. 59-75.

⁴⁷³ Steen, “Bare Objects”; Steen, “Stuff, Process, and Objects”, p. 250.

⁴⁷⁴ Another philosopher who has recently argued for the thesis that some “composite” material objects, namely, living organisms, are best understood as processes is John Dupre (see, for example, his “Living Causes”, *Proceedings of the Aristotelian Society Supplementary Volume*, Vol. 87, No. 1 (Jun., 2013): pp. 19-37; “Animalism and the Persistence of Human Organisms”, *The Southern Journal of Philosophy Spindel Supplement*, Vol. 52 (Sep., 2014): pp. 6-23).

fact have). Similarly, a bare object, stripped of any activity it is undergoing, would, while not being featureless, not have much in the way of causal powers. Even an object such as a piece of gold is not a true bare object, rather, it is ‘a golding’ which the matter is performing. The same matter could be re-arranged to make water, plutonium, or unobtainium. So, the Process Hyleist conceives of commonsense objects not as enmattered forms, but rather, processes-in-some-matter-or-other (but not necessarily in the matter that is in fact its host).⁴⁷⁵

This close cousin to process hyleism, the theory of material objects that Steen calls

‘hyloenergeism’, is one that I will consider in more detail in section 4.3 below.

4.2.2 Biological Minimalism

In his now classic text, *Material Beings*, Peter van Inwagen introduces, in several formulations, what he calls the “special composition question”.⁴⁷⁶ Here are a few of the key formulations: “[I]n what circumstances do things add up to or compose something? When does unity arise out of plurality?”⁴⁷⁷ “What causal relations are involved in parthood? What multigrade causal relations must hold among the *xs* if they are to compose something?”⁴⁷⁸ “When is it true that $\exists y$ the *xs* compose *y*?”⁴⁷⁹ What is common to all of these formulations is their demand for a *universal criterion* for composition: what must be true of any set of things in order for them to compose some further thing? In Section Nine of his book, van Inwagen gives his preferred answer, his preferred universal criterion for composition: “Here is the answer I propose: ($\exists y$ the *xs* compose *y*) if and only if the activity of the *xs* constitutes a life (or there is only one of the *xs*).”⁴⁸⁰ According to van Inwagen, then, what must be true of any set of things in order for them to compose some further thing is that the activity of those things must constitute a life. In no other circumstances do material objects give rise to composite wholes. As van

⁴⁷⁵ Steen “Bare Objects”; Steen, “Stuff, Process, and Object”, p. 288.

⁴⁷⁶ Peter van Inwagen, *Material Beings* (Ithaca, NY: Cornell University Press, 1990).

⁴⁷⁷ *Ibid.*, p. 31.

⁴⁷⁸ *Ibid.*, p. 81.

⁴⁷⁹ *Ibid.*, p. 30.

⁴⁸⁰ *Ibid.*, p. 82.

Inwagen himself points out, his preferred answer to the special composition question entails that “the only composite objects are living organisms.”⁴⁸¹ As a result, van Inwagen’s theory of material objects has since come to be known as “Biological Minimalism”.⁴⁸²

According to van Inwagen, a “life”, the key feature of any composite material object, is a certain kind of event. To be more precise, for van Inwagen, a life is a certain kind of *biological* event:

The word ‘life’ can certainly be used in such a way that, for example, the phrase ‘Bertrand Russell’s life’ denotes something like the totality of Lord Russell’s adventures or that event the course of which is narrated in his autobiography. But the word also has a perfectly legitimate sense according to which ‘Russell’s life’ denotes a purely biological event, an event which took place entirely inside Russell’s skin and which went on for ninety-seven years. It is in this sense that I use the word ‘life’.⁴⁸³

A life, for van Inwagen is both “self-maintaining” and “self-directing”. In this way, the life of an organism is similar to the activity of a storm, as the following analogy from *Material Beings* illustrates:

What I am observing is an unimaginably complex self-maintaining storm of standard components. I would compare it with the Great Red Spot on Jupiter, which has been in existence for hundreds of years. (Or I might compare it with a wave, or the propagation of a wave, which is a sort of self-maintaining event that involves different particles of fluid at different times.) The surface of the world is littered with standard components assembled in various ways. This storm that I am observing moves across the surface of the world drawing swirls and clots of standard components into it and expelling others, always maintaining its overall structure. One might call it a homeodynamic event.⁴⁸⁴

⁴⁸¹ *Ibid.*, p. 92.

⁴⁸² See, for example, Eric T. Olson, *What Are We? A Study in Personal Ontology* (Oxford: Oxford University Press, 2007): p. 226.

⁴⁸³ van Inwagen, *Material Beings*, p. 83. It is interesting to note that, even though van Inwagen categorizes the life of an organism as an “event” here, his distinction between two meanings of the word “life” looks strikingly similar to the distinction between an event and a process found in several of the authors considered above. Russell’s “biological life” even seems to fall on the process side of this distinction.

⁴⁸⁴ *Ibid.*, p. 86.

Lives, for van Inwagen, are also “jealous”. To say that a life is jealous is to say that no material object can be caught up in more than one life at a time.⁴⁸⁵ Lastly, for van Inwagen, lives are particulars; they are not the sorts of events that may be said to recur.⁴⁸⁶ According to van Inwagen’s Biological Minimalism, then, what must be true of any set of things in order for them to compose some further thing is that the activity of those things must constitute a self-maintaining, self-directing, jealous, biological event - an individual life.

The most important elements of van Inwagen’s Biological Minimalism for our present purposes are, as follows. First, according to van Inwagen, a necessary feature of any composite material object is that the activity of its material parts constitutes a life, a certain “homeodynamic” event. Without lives, without these self-maintaining, self-directing events, there would be no composite material objects. Second, like Karmo’s disturbances and Steen’s processes, van Inwagen’s lives are dependent entities: a life is always the activity of, or is always constituted by the activities of, some set of material objects. In *Material Beings*, van Inwagen is careful to point out that his view does not assume that every event is always the activity of some set of material objects or other. He is at least willing to entertain the idea that there might be “pure” events.⁴⁸⁷ Lives, however, are not events of that sort. They are dependent entities. Third, for van Inwagen, the material component of any composite material object, which may be said to underlie its life, is a collection of indivisible atoms (as opposed to a portion of stuff). His view, then, is explicitly atomistic.

⁴⁸⁵ *Ibid.*, p. 89. Since, for van Inwagen, the only composite material objects are living things, and since, on his view, all lives are jealous, it also follows that no two composite material objects can ever share any of their parts. The account of material objects that I propose in section 4.3 below says something similar about composite material substances.

⁴⁸⁶ *Ibid.*, p. 82.

⁴⁸⁷ *Ibid.*, p. 82.

Unlike Steen, van Inwagen is explicitly neutral on whether events or activities can be reduced to substances, their properties, and the relations that hold between them. Right after introducing the idea of an activity or an event, van Inwagen includes the following disclaimer:

It is certainly no part of my purpose either to contend or deny that events are ‘irreducible entities’ or ‘ultimately real.’ If a philosopher wishes to maintain that sentences that are apparently about events are misleading expressions of facts that in reality involve only substances or continuants, I will not protest. I will simply ask him to understand those of my sentences that are apparently about events in the same way he understands any other sentences that are apparently about events.⁴⁸⁸

In later works, van Inwagen does voice his desire to reduce events to substances and their relations,⁴⁸⁹ but in *Material Beings*, he makes no such claim.

Perhaps the key element of van Inwagen’s Biological Minimalism for our present purposes is that, unlike Karmo, Zimmerman, and Steen, van Inwagen does not identify an ordinary material object with the activity that is its life. There is a sense in which, for van Inwagen, every composite material object has a dual-aspect nature. There are the various atoms, which make up the material aspect of a composite object, and there is also the activity of its life, which is something like that object’s formal aspect. Now, nowhere does van Inwagen commit himself to the view that an activity is a metaphysical part of a composite material object, but I do think that the comparison to hylomorphism is apt. For, at one point, van Inwagen himself admits that

In explaining what a life is, and having done so, in saying that the things called ‘organisms’ or ‘living things’ in everyday life are things that are composed of objects whose activities constitute lives in the sense explained, I have presented a certain picture, rather an abstract one, of the nature of a living organism. This picture is a philosophical picture (*stripped of its atomism, it would be Aristotle’s picture*).⁴⁹⁰

⁴⁸⁸ *Ibid.*, p. 82.

⁴⁸⁹ See, for example: Peter van Inwagen, “A Materialist Ontology of the Human Person”, in Peter van Inwagen and Dean Zimmerman (eds.), *Persons: Human and Divine* (Oxford: Oxford University Press, 2007): pp. 202-203; Peter van Inwagen, “Dispensing with Ontological Levels: An Illustration”, *Disputatio*, Vol. 6, No. 38 (May, 2014): pp. 37-38.

⁴⁹⁰ van Inwagen, *Material Beings*, p. 92, emphasis added.

In section 4.3 below, I will consider in more detail a non-atomistic, mereological version of van Inwagen's view, one that comes very close to the sort of view that van Inwagen himself attributes to Aristotle.

4.2.3 The New Mechanism

In their 2000 article, "Thinking About Mechanisms", Peter Machamer, Lindley Darden, and Carl Craver give the following characterization of "mechanisms": "Mechanisms are entities and activities organized such that they are productive of regular changes from start or set-up to finish or termination conditions."⁴⁹¹ "Mechanisms", they go on to explain, "are composed of both entities (with their properties) and activities. Activities are the producers of change. Entities are the things that engage in activities."⁴⁹² The account that Machamer, Darden, and Craver give of mechanisms, then, is, like the account that Karmo, Zimmerman, Steen, and van Inwagen give of composite material objects, a dual-category theory. It includes both things (here "entities") and occurrences (here "activities"). Importantly, for Machamer, Darden, and Craver, while the categories of entity and activity are complementary, neither is, in any way, reducible to the other. As they explain later in the same article: "we are dualists: both entities and activities constitute mechanisms. There are no activities without entities, and entities do not do anything without activities."⁴⁹³

Machamer, Darden, and Craver's account of mechanisms has been influential in the literature on scientific explanation, but they have also been criticized for being unclear about the

⁴⁹¹ Peter K. Machamer, Lindley Darden, and Carl F. Craver "Thinking About Mechanisms", *Philosophy of Science*, Vol. 67, No. 1 (Mar., 2000): p. 3. See also: Peter K. Machamer, "Activities and Causation: The Metaphysics and Epistemology of Mechanisms", *International Studies in the Philosophy of Science*, Vol. 18, No. 1 (Mar., 2004): pp. 27-39. I thank Michael Mazza for pointing me to this literature.

⁴⁹² Machamer, Darden, and Craver, "Thinking About Mechanisms", p. 3.

⁴⁹³ *Ibid.*, p. 8.

nature of their “activities”.⁴⁹⁴ What, exactly, are these activities of which mechanisms are composed? At first glance, Machamer, Darden, and Craver’s activities appear to be very similar to Karmo’s disturbances and Steen’s processes (and perhaps even to Steward’s or Stout’s processes). Consider, for instance, the following passage from their 2000 article:

activities are the happenings that, singularly or in concert with other activities, produce changes in or bring into existence other entities and/or activities (where the entity may be the entity that is acting or the one acted upon or both, or some set of other entities and activities). Again, we might say that activities are ways of acting, processes, or behaviours; they are active rather than passive; dynamic rather than static.⁴⁹⁵

As was mentioned in the previous paragraph, like Steen’s processes, Machamer, Darden, and Craver’s activities are not, in any way, reducible to the entities whose activities they are, or to those entities, their properties, and the relations that hold between them. As our authors themselves explain, “Mechanisms do things. They are active and so ought to be described in terms of the activities of their entities, not merely in terms of changes in their properties.”⁴⁹⁶ On closer examination, however, Machamer, Darden, and Craver’s activities are different from Steen’s and Stout’s processes (and more like Steward’s) in one important respect: they are necessarily extended in time.⁴⁹⁷

Many of the details of Machamer, Darden, and Craver’s account of mechanisms can be set aside for the moment, but there are a few important elements that are relevant for our present purposes. First, Unlike Karmo, Zimmerman, and Steen, Machamer, Darden, and Craver do not identify ordinary material objects with any members on the occurrence side of their ontology. Material objects are the *entities* of which mechanisms are composed. However, these material

⁴⁹⁴ For discussion, see: Phyllis Illari and Jon Williamson, “In Defense of Activities”, *Journal for General Philosophy of Science*, Vol. 44, No. 1 (Jul., 2013): pp. 69-83; Holly Andersen, “A Field Guide to Mechanisms: Part I”, *Philosophy Compass*, Vol. 9, No. 4 (Apr., 2014): pp. 274-283.

⁴⁹⁵ Machamer, Darden, and Craver, “Thinking of Mechanisms”, p. 29.

⁴⁹⁶ *Ibid.*, p. 5.

⁴⁹⁷ Illari and Williamson, “In Defense of Activities”, p. 72.

objects only compose mechanisms when they engage in the right sorts of activities. And so, in this way, Machamer, Darden, and Craver's "New Mechanism" is somewhat reminiscent of van Inwagen's account of living organisms. Even here, though, there is a unique feature of Machamer, Darden, and Craver's account. Whereas van Inwagen is reluctant to include an organism's life among its parts, Machamer, Darden, and Craver insist that mechanisms are *composed* of entities and activities, mechanisms have activities among their *parts*.

Now, it is not clear to me whether composite material objects, such as living organisms, are, on Machamer, Darden, and Craver's view, instances of mechanisms, or whether such objects remain on the entity side of their ontology. But, given that the material parts of organisms are precisely the sorts of entities that they take to engage in mechanism-producing activities,⁴⁹⁸ it seems that, for Machamer, Darden, and Craver, living organisms can be understood as instances of mechanisms, or at least as composed of various mechanisms. If that much is correct, then Machamer, Darden, and Craver's view of mechanisms offers an interesting account of composite material objects. On this account, a composite material object, qua mechanism, has two sorts of parts: it is composed of entities and activities. In section 4.3 below, I will consider in more detail a very similar *mereological* dual-aspect theory of material objects.

4.2.4 Non-Structural Hylomorphism

A number of contemporary proponents of hylomorphism, recognizing the limitations of relational and structural approaches, have recently begun to consider various non-relational, non-structural conceptions of substantial form. In Chapter 1, for example, we saw that, for Fine, the principal formal component of a "variable embodiment", the type of material object that can survive at least a certain amount of variation in its material and structural parts, is neither a

⁴⁹⁸ See, for example: Machamer, Darden, and Craver "Thinking About Mechanisms", p. 13.

relation nor a structure, but a quasi-mathematical function.⁴⁹⁹ And, for Jaworski, the formal “structures” of certain complex material objects, such as living organisms, are best understood, not as relations or as configurations of matter, but as “activities” that the material constituents of such objects undergo, or the “patterns of interaction” that such complexes exhibit.⁵⁰⁰

Jaworski’s remarks in particular point to something of an alternative stream within the hylomorphism camp. According to this alternative stream, the substantial form of a material object is more than, and perhaps even other than, the organization, arrangement, or configuration of its parts. According to this alternative stream, the notion of form must necessarily include certain irreducibly dynamic elements. So, for instance, according to David Oderberg,

mere structure in the sense of configuration of parts is far too static a concept to tell you all there is about the form of an animal: There are its characteristic functions and behaviour, its dispositions, instincts, tendencies, actions and reactions, and all the rest of which ethology is made. These dynamic notions have to be added to the relatively static structural notions to get us to something like an account of the form of a living thing.⁵⁰¹

Along these lines, Anna Marmodoro has recently suggested that, at least for Aristotle, the substantial form of a material object is more like an “operation” on its material constituents than any relation that might hold between them:

the unification of the parts of a substance into one is not achieved by any item that relates them, or bridges the gap between them, or generally comes in between the parts and collects them somehow together into a whole...the substantial form that unifies the elements of a substance is a principle. Since what is needed is the shedding of only the distinctness of the elements, the role of this unifying principle must be just that: to strip the elements of their distinctness. I conclude, therefore, that the substantial form

⁴⁹⁹ Kit Fine, “Things and Their Parts”, *Midwest Studies in Philosophy*, Vol. 23, No. 1 (1999): pp. 68-69.

⁵⁰⁰ See, for example: William Jaworski, *Structure and the Metaphysics of Mind* (Oxford: Oxford University Press, 2016): pp. 14-15, 104; William Jaworski, “Hylomorphism and the Metaphysics of Structure”, *Res Philosophica*, Vol. 91, No. 2 (Apr., 2014): p. 193; William Jaworski, “Hylomorphism and Resurrection”, *European Journal for Philosophy of Religion*, Vol. 5, No. 1 (Spring, 2013): p. 212; William Jaworski, “Powers, Structures, and Minds”, in John Greco and Ruth Groff (eds.), *Powers and Capacities in Philosophy: The New Aristotelianism* (New York: Routledge, 2012): p. 157; William Jaworski, “Hylomorphism: What It Is and What It Isn’t”, *Proceedings of the American Catholic Philosophical Association*, Vol. 85 (2012): p. 182.

⁵⁰¹ David S. Oderberg, “Is Form Structure?”, in Daniel D. Novotny and Lukas Novak (eds.), *Neo-Aristotelian Perspectives in Metaphysics* (New York: Routledge, 2014): p. 177.

according to Aristotle is an operation on the elements of a substance, stripping them of their distinctness, rather than being an item in the ontology.⁵⁰²

Following Marmodoro, Robert Koons has also recently argued that the substantial form of a material object is best understood as a certain type of “process” that its material constituents are undergoing or have undergone:

As Marmodoro puts it, Aristotelian form is not literally a part of the composite substance; it is an ‘operation’... —I would prefer a ‘process’—with the material parts as participants, and the whole substance as the resultant. Marmodoro... takes the operation in question to be a metaphysical one, since she takes form to be an abstract object. I would prefer an alternative, in which forms are concrete and the operation of the form is truly causal and diachronic. Formal and material causation are, on my view, both real, diachronic causal connections: the formal process, with its material participants, operating during each interval is the cause of the existence of the whole substance at the end of the interval. A composite substance exists at time *t* because its material components participated in an appropriately formal process in some interval of time immediately before *t*. Marmodoro takes the form to be an abstract object embodied by these formational processes, rather than taking it (as I do) as the process itself.⁵⁰³

And, in his 2014 book, *The Activity of Being*, Aryeh Kosman argues for the conclusion that, in Aristotle’s ontology, the form or substance of a material object is a certain core “activity”.⁵⁰⁴

Note, in particular, the repercussions of such a view for understanding Aristotle’s ontology that Kosman cites toward the end of his book:

Our story might be as simple as this: knowing that substance is the paradigmatic form of being, and understanding now that substance is the activity of those things that are able to be fully what they are, being what they are, we understand being. Being is the activity of things’ being what they are. Understanding the connection between substance and activity, given the paradigmatic status of substance, helps us to see Aristotle’s ontology as an ontology that portrays being as activity. In thus identifying a substance as the activity of a subject’s being what it is, this story reveals with clarity the ontological centrality of activity. It thus shows how misleading are depictions of Aristotle’s ontology of substance as an ontology of things, of inert and static entities – depictions that often accompany a

⁵⁰² Anna Marmodoro, “Aristotle’s Hylomorphism Without Reconditioning”, *Philosophical Inquiry*, Vol. 36, No. 1-2 (Winter-Spring 2013): p. 17.

⁵⁰³ Robert C. Koons, “Stalwart vs. Faint-Hearted Hylomorphism: Toward an Aristotelian Account of Composition”, *Res Philosophica*, Vol. 91, No. 2 (Apr., 2014): pp. 159.

⁵⁰⁴ Aryeh Kosman, *The Activity of Being: An Essay in Ontology* (Cambridge, MA: Harvard University Press, 2013).

contrast, explicit or implicit, with theories thought to privilege a more active and dynamic view of being.⁵⁰⁵

What I take to be the main commonality between all of these non-relational, non-structural conceptions of substantial form is their commitment to an inherently dynamic approach to form. While in their details they diverge, for each of these dynamic conceptions, the substantial form of a thing is more like an occurrence - a happening, doing, or going-on - than a relation, structure, organization, or configuration. And it is precisely this “energeic” approach to substantial form to which I will now turn.

4.3 Hyloenergeism: Form as Activity

4.3.1 An Introduction to the Proposed Account

The account of material objects that I would like to propose brings together elements from five now-familiar sources: structural hylomorphism, Brower’s hylomorphism, Aquinas’s hylomorphism, the alternative approach to understanding the nature of processes outlined in section 4.1. above, and the occurrence-based approaches to material objects introduced in the previous section. The account is built on three main claims. First, following in the tradition of Aristotle and Aquinas, the proposed account is a version of hylomorphism, in that it holds that there is both a material aspect and a formal aspect to every material object. Second, the proposed account is a version of mereological hylomorphism, in that it holds that the principal formal aspect of any material object is included among its proper parts. Thirdly, and most importantly, the proposed hylomorphic account of material objects is a version of non-structural hylomorphism, in that it rejects a structuralist conception of substantial form. On the proposed account, the substantial form of a material substance, its principal formal component, is not to be identified with any kind of relation, structure, organization, arrangement, or configuration of its

⁵⁰⁵ *Ibid.*, p. 239.

material constituents. It is also not to be identified with any kind of power, capacity, or property possessed by its material aspect. The present account does not deny the existence of relations, structures, powers, or properties, but it does insist that none of these categories properly captures the fundamental nature of substantial form. According to the proposed account, the fundamental nature of substantial form can only be properly captured by thinking of the substantial form of a material substance as something like an activity or process that its material aspect is undergoing. Following Steen, let us refer to this version of hylomorphism as “hyloenergeism”.⁵⁰⁶ I will now proceed to develop each of these three claims in more detail.

According to the proposed account, there is both a material aspect and a formal aspect to every material object. The first thing to note about this claim is its universality: *every* material object has both a material and a formal aspect. As will be explained in more detail below, the present account does recognize more than one type of material object. And the content of a material object’s material and formal aspects will vary depending on the type of material object being considered. Nevertheless, every material object of any of the recognized types will necessarily include both aspects.

Following in the tradition of Aristotle and Aquinas, the proposed account recognizes both material substances and material artifacts. Material substances are those material objects in which the principal formal aspect is a single substantial form. As we saw in Chapter 2 and Chapter 3, for Aquinas, the material aspect of a material substance, the immediate complement of its substantial form, is prime matter. But, on his view, material substances can also be said to have various “derivative” material components, material parts that are the result of the

⁵⁰⁶ The term ‘hyloenergeism’ is, like ‘hylomorphism’, a combination of two Greek words used by Aristotle throughout his works to describe the dual-aspect nature of material substances. In the present case, the two words are ‘*hyle*’, which is often translated as ‘matter’, and ‘*energeia*’, which is sometimes translated as ‘activity’. Hyloenergeism, then, is the view that all material objects are composites of matter and activity, with activity playing the role of substantial form.

substantial form's influence on prime matter, such as the more recognizable elemental and functional parts of a living organism. Material artifacts are those material objects in which the principal formal aspect is an accidental form (or perhaps in some cases two or more accidental forms). The material aspect of a material artifact, then, is a material substance (or two or more material substances). And so each of the material components that comprise the material aspect of a material artifact has its own material and formal aspect.

Within the category of material substance, the present account recognizes both composite material substances and "simple" or "elemental" material substances. Composite material substances are those material substances that have distinct, albeit non-substantial, material parts. Simple or elemental material substances are those material substances that do not have distinct material parts.⁵⁰⁷ As we saw in Chapter 1, some structural hylomorphists attribute a formal aspect only to composite material objects, which would include composite material substances and material artifacts. Here, however, even non-composite material objects, that is, simple or elemental material substances, possess an essential formal aspect. On the present account, then, no material object is reducible to its matter alone.

According to the proposed account, the principal formal aspect of any material object is included among its proper parts. As we saw in Chapter 1 and section 4.2 above, there are several contemporary proponents of hylomorphism, such as Johnston, Marmodoro, and Koons, who resist a mereological reading of the view. But there are others, like Fine, Koslicki, Stump, and Brower, who argue that the principal formal aspect of a material object ought to be included

⁵⁰⁷ To be more precise, a simple material substance does not have any "heteromeric" material parts, material parts that are different in species from the whole and from each other. A simple material substance may, however, be divisible into particulars that are of the same species as the whole. For example, if water were a simple substance (as Aristotle and Aquinas took it to be), then any portion of pure water (a simple material substance) could be divided only into smaller portions of water.

among its proper parts.⁵⁰⁸ Often at the center of this dispute among contemporaryhylomorphists is the worry about parthood and unity that I briefly discussed at the beginning of Chapter 1 in my summary of Johnston’s view.⁵⁰⁹ And while I do not have the space to enter into this debate here, I will say that I find Koslicki’s reply to Johnston’s worry persuasive.⁵¹⁰

I myself prefer a mereological version ofhylomorphism because it offers the simplest and most straightforward account of the relationship between a material object and its principal formal aspect. In general,hylomorphism says that a material object has the essential characteristics that it does in part because it possesses a certain formal aspect. On a mereological reading of the view, what it means for a material object to possess a certain formal aspect is for that formal aspect to be included among its proper parts. On such a reading, then, a material object has the essential characteristics that it does in part because it includes among its proper parts a certain formal aspect. And the fact that a material object is characterized by some particular formal aspect and not some other is explained by the fact that that material object possesses its own formal aspect and not some other as a proper part. Similar to the way in which a composite material object might be said to inherit various features from certain other material objects when those material objects are among its parts,⁵¹¹ according to mereologicalhylomorphism, a material object inherits certain features from a certain formal aspect when that formal aspect is among its parts. Now, there may be ways in which the relationship between a

⁵⁰⁸ Importantly, some of these authors (Brower, Stump) take the formal aspect of a material object to be a metaphysical part of that object rather than a further integral part. Those who reject a mereological reading of the view reject even this.

⁵⁰⁹ See: Mark Johnston, “Hylomorphism”, *The Journal of Philosophy*, Vol. 103, No. 12 (Dec., 2006): pp. 652-653, 659, and 672-673; Marmodoro, “Aristotle’s Hylomorphism”, pp. 6, 15; Jaworski, *Structure and the Metaphysics of Mind*, pp. 327-328.

⁵¹⁰ See: Kathrin Koslicki, *The Structure of Objects* (Oxford: Oxford University Press, 2008): p. 198.

⁵¹¹ Strictly speaking, on thehylomorphic theory of material objects that I am proposing, it is only in the case of composite artifacts that a composite material object can be said to inherit various features from the material objects that serve as its material parts. Since each of the material parts of a composite substance are “derivative”, that is to say, such parts are the result of the substantial form’s influence on prime matter, in such cases, the “inheritance” of various features actually runs in the other direction.

material object and its principal formal aspect could be spelled out in non-mereological terms, but it seems to me that parthood is the simplest and most straightforward. Barring any serious reasons to reject a mereological reading, then, I think that we ought to prefer that one. For these reasons, the present account sides with Fine, Koslicki, Stump and Brower. The principal formal aspect of any material object is included among its proper parts.

Since, on the present account, every material object has both a material aspect and a formal aspect, it also follows that every material object has at least two metaphysical parts. Even “simple” or “elemental” material substances, those material substances that do not have distinct material parts, turn out to be mereologically complex on this view. Each of them includes among its metaphysical parts both prime matter (its material aspect) and substantial form (its principal formal aspect).⁵¹² On the present account, then, strictly speaking, no material object is mereologically simple.⁵¹³

The most distinctive, and, indeed, the most controversial, claim of the proposed account is its alternative conception of substantial form. In Chapter 1, I pointed to at least three major concerns for structuralist conceptions of substantial form.⁵¹⁴ I argued that these concerns are sufficient to motivate the search for an alternative. To that end, the proposed hylomorphic

⁵¹² As a matter of fact, as we saw in Chapter Two, according to the alternative model of Aquinas’s general ontology, every material substance actually has at least *two* formal parts. A material substance includes among its metaphysical parts: (1) prime matter, (2) the essential formal part that is its substantial form, and (3) the various non-essential formal parts that are its accidental properties. And no material substance can ever exist without having some accidental form or other.

⁵¹³ Artifacts, too, will have at least one material part and one formal part, but the story here is a bit more complicated. According to the alternative model outlined in Chapter Two, there are two types of artifacts: single-substance artifacts and multi-substance artifacts. Single-substance artifacts are proper parts of individual substances. Each is composed of prime matter, the individual substance’s substantial form, and one or more of the individual substance’s accidental forms. A bronze statue, for example, is a proper part of a lump of bronze. It is composed of prime matter, the bronze’s substantial form, and the bronze’s shape. Multi-substance artifacts, however, have individual substances as proper parts. Each is composed of two or more individual material substances that are related to one another in some way. An axe, for example, is composed of two substances: iron and wood. When the iron has, as one of its own proper parts, a certain relation with respect to the wood (or vice versa), then the iron and wood, each of which is itself an individual substance, together compose an axe, a multi-substance artifact. I plan to develop such an account of artifacts in more detail in future work.

⁵¹⁴ I also revisit these objections in section 4.4.2 below.

account of material objects takes as its inspiration the radically different approach to material objects that was introduced in section 4.2 above. While they differ in their details, what all of the aforementioned occurrence-based views of material objects share is a commitment to the claim that in order to give a proper account of composite material objects it is necessary to introduce an irreducibly dynamic category of being. For Karmo, Zimmerman, Steen, and Koons, this dynamic category is the category of process. For van Inwagen, Jaworski, Kosman, and the new mechanists, this dynamic category is activity. According to the proposed account, the substantial form of a material substance is best understood as falling under one of these irreducibly dynamic categories. The substantial form of a material substance is, then, an occurrence – something that occurs, happens, goes on, or is done. And, as will be explained in more detail below, on the present account, a substantial form is, in many respects, similar to the species of occurrence that the authors featured in the sections above refer to as process or activity. In this way, the proposed hylomorphic account can be seen to borrow from, and build on, not only structural hylomorphism, Brower's hylomorphism, and Aquinas's hylomorphism, but also the alternative approach to understanding the nature of processes, and the occurrence-based views of material objects introduced at the start of this chapter.

4.3.2 An Occurrence-based, Hylomorphic Ontology of Material Objects

According to the proposed account, the substantial form of a material substance is, or is something very much like, an activity or process that its material aspect is undergoing. Now, much more will need to be said about the particular notion of process or activity that is operative in this account if hyloenergeism is to be made a legitimate alternative to structural hylomorphism. And so, before concluding this section of Chapter 4, it will be necessary to say a bit more about what a substantial form amounts to on this view. Before moving on to that

discussion, however, I would like to say a bit more about how the first two claims that were used to characterize the proposed account above should be understood in light of its alternative conception of substantial form. I would also like to say a bit more about what the larger hylomorphic ontology looks like with process or activity at its center, and how that ontology is similar to and different from each of the occurrence-based ontologies outlined in the previous section.

On the proposed account, there is both a material aspect and a formal aspect to every material object. To say that a substantial form is best understood as a process or activity that its material aspect is undergoing, then, is to say that the principal formal aspect of a material substance is a certain process or activity. Here I would like to make two important clarifications. First, to say that the principal formal aspect of a material substance is best understood as a process or activity is not to say that *all* of the formal aspects of a material substance are, or are even reducible to, activities or processes. The present account recognizes that a material substance will also have, at any time, various static features, such as a particular size, shape, color, and mass.⁵¹⁵ And some of these static features may even be necessary features of certain material substances. But the principal formal aspect of a material substance, its essential formal metaphysical part, is not to be identified with any one of, or any set of, these static features.⁵¹⁶

⁵¹⁵ Eleonore Stump has been suggested to me that shape might actually be considered a dynamic feature of some objects rather than a static feature. However, while the shape of an object might be intimately related to one or more of the dynamic features of a material object (perhaps the particular shape that a material object exhibits is a *result* of certain dynamic features), I do not think that shape is itself a dynamic feature. I say more about the relationship between an object's static and dynamic features in section 4.4.3 below.

⁵¹⁶ The present account, then, recognizes a distinction between the necessary parts of an individual substance and the essential parts of an individual substance. Similar to the way in which various rational powers are said to "flow" necessarily from a rational soul in Aquinas's ontology, the present account recognizes that there may be various static features that "flow" necessarily from the process or activity that serves as a material substance's principal formal component. See sections 3.5 and 3.7 above for more on this important distinction. See, also, sections 4.4.2 and 4.4.3 below for more on the relationship between the static structural features of a composite material substance and the activity or process that occurs in its matter.

Second, to say that the principal formal aspect of a material substance is best understood as a process or an activity that its material aspect is undergoing is not to say that the principal formal aspect of a material substance is the *only* activity or process that the material substance or its material aspect is performing or undergoing. The present account recognizes that there are likely to be a number of activities, processes, or other occurrences in which a material substance is involved at any time, such as various changes that the material substance or its material parts are undergoing, and various actions that the material substance or its material parts are performing. The distinctive claim of the proposed account is that there is one such, and only one such, process or activity that is essential to the material substance, one such, and only one such, process or activity the cessation of which would constitute its corruption. And so, while the account recognizes that there are likely to be a number of activities, processes, or other occurrences taking place in the matter of a material substance at any time, only one of those activities or processes is essential to it. All of the other activities and processes present in a material substance that are not its substantial form must be regarded as accidents: they are activities or processes that the material substance can undergo or cease to undergo over time without thereby ceasing to exist.⁵¹⁷ Naturally, then, it will be important for a proponent of hyloenergeism to offer a principled way of distinguishing between the activity or process that is a material substance's substantial form and the activities, processes, or other occurrences that are its accidental forms. This issue will be addressed in more detail below. For now, in order to mark

⁵¹⁷ Naturally, there may be other processes or activities the cessation of which might *lead* to the corruption of a material substance, but, on the view that I am proposing, there is only one process or activity the cessation of which would *constitute* its corruption. The former can cause the corruption of the material substance only inasmuch as they can cause the cessation of the latter.

this key distinction, let us stipulate that, on the present view, the substantial form of a material substance refers to its “substantial” activity or “substantial” process.⁵¹⁸

According to the proposed account, the formal aspect of any material object is included among its proper parts. To say that a substantial form is best understood as a process or activity that its material aspect is undergoing, then, is to say that a material substance has as one of its proper parts, a certain substantial activity or substantial process. Ultimately, following the alternative model outlined in Chapter 2, I want to say that all of the activities and processes that a material substance or its matter is undergoing at any time are included among the material substance’s proper parts (assuming that such entities would correspond to accidental forms). But, minimally, the proposed account requires that the substantial activity that a material substance’s material aspect is undergoing be counted among its metaphysical parts.

According to hyloenergeism, then, a material substance has as one of its proper parts a certain substantial activity or substantial process. Now, the claim that certain material objects include activities or processes among their proper parts is itself a rather bold claim. But the general move being made here is one that we have already seen several times in this dissertation. The general move is this: first, take a certain type of entity the existence of which we have independent reasons to posit. Then, establish that this type of entity is crucial for understanding the nature of composite material objects. Finally, as a means of explaining how individual material objects derive certain of their characteristics from entities of this type, include entities of this type among the proper parts of those material objects. As we saw in Chapter 1, structural hyломorphism makes precisely this sort of move for relations or structures. According to Fine, composite material objects are characterized in certain ways because they include certain

⁵¹⁸ I have borrowed the phrase “substantial activity” from Machamer (see his “Activities and Causation”, p. 30), but, whereas Machamer uses the phrase to refer to activities that are themselves “substance-like”, I am using the phrase to refer to the singular essential activities of material substances.

relations among their proper parts. And according to Koslicki, composite material objects are characterized in certain ways because they include certain structures among their proper parts. Moreover, as we saw in Chapter 1 and Chapter 2, the bundle theory of material objects makes a similar sort of move for properties. Material objects are characterized by certain properties (and not others) because they include those properties (and not others) among their proper parts. The claim that a material substance has as one of its proper parts a certain activity or process, then, should be seen as making the same sort of move. There are activities and processes. And there are reasons, to be discussed in more detail below, to believe that activities or processes are crucial for understanding the nature of certain material objects. So, as a means of explaining how individual material objects derive certain of their characteristics from certain activities or processes, the proposed account includes activities or processes among the proper parts of those material objects.

Now, with that said, perhaps there is something about activities or processes that makes those entities particularly unsuited to serve as metaphysical parts of material substances, something that is not also true of relations, structures, powers, or properties. For instance, perhaps the category of activity or process is ultimately reducible to other, more basic ontological categories, such as substances, properties, and relations. Or perhaps particular activities and processes are such that, when properly specified, they necessarily include one or more material substances among their parts rather than the other way around. These are legitimate concerns. And I do think that they will need to be adequately addressed if hyloenergeism is to be made plausible to those not already sympathetic to its main claims.⁵¹⁹

⁵¹⁹ Unfortunately, I do not have the space to adequately address these concerns here. I think that it can be plausibly argued that some processes or activities are ontologically prior to at least some material substances, but to establish the more general claim that occurrences can be more fundamental than, or at least as fundamental as, objects would take much more time and space than a single chapter in a single dissertation. One might, however, see the arguments

But, from the foregoing, it should be clear that the general strategy of including certain members of non-substance categories among the proper parts of material substances cannot be what makes the proposed account objectionable. For, as we have seen, structural hylomorphists and bundle theorists make precisely the same move.

As I mentioned earlier, the proposed account can be seen to borrow from, and build on, not only structural hylomorphism, Brower's hylomorphism, and Aquinas's hylomorphism, but also the occurrence-based views of material objects introduced at the start of this chapter. Principally, it shares with the latter a commitment to the claim that in order to give a proper account of composite material objects it is necessary to introduce some irreducibly dynamic category of being. On the present account, the substantial form of a material substance is best understood as, or as something very much like, an activity or process, and thus it is best understood as falling under some irreducibly dynamic category. However, there are some important differences between hyloenergeism and the views outlined in section 4.2 above.

First, unlike the disturbance theory of material objects proposed by Karmo and further developed by Zimmerman and Steen, the proposed account does not *identify* a material substance with any kind of process. On the present account, the substantial process that a material substance's matter is undergoing is merely its principal formal aspect. The material substance itself includes two distinct aspects: both the matter and the process that that matter is undergoing. Second, unlike the biological minimalism of van Inwagen, the proposed account is an explicitly *mereological* dual-aspect view, that is, it takes the activity in which a material substance's material aspect is engaging to be one of the material substance's proper parts. On the present

(presented below) in support of a hyloenergeic account of material objects as a sort of argument for the priority of activity by utility. If I am right to suggest that hyloenergeism has the resources to preserve the main theoretical explanatory virtues of structural hylomorphism while also avoiding its pitfalls, perhaps this is enough to cause the reader to re-think her assumptions about the priority of objects. I say more about the intended scope of my conclusions in section 4.5 below.

account, a material substance's essential metaphysical parts include both its matter and the substantial activity that that matter is undergoing. Another difference between van Inwagen's view and the proposed account is that it is not atomistic. On the present account, the material aspect of a material substance, that which serves as the immediate complement of its substantial activity, is not a set of individual material substances. Rather, the complement of its substantial activity is prime matter, which, following Brower, we might understand as a sort of non-specific, non-particulate, "gunky-stuff".⁵²⁰

Like the new mechanism featured above, the proposed account includes the various activities in which a composite material object's material constituents are engaged among the proper parts of that composite material object. However, unlike the new mechanism, the proposed account singles out one of these activities as the essential, substantial activity of the object of which it is a part. This signals hyloenergeism's commitment to the unicity of substantial form, a view discussed in detail in Chapter 3 and further explored in section 4.4 below. Finally, like the versions of non-structural hylomorphism briefly considered in section 4.2 above, the proposed account takes the substantial form of a material substance to be a certain kind of occurrence. However, unlike the views of Marmodoro and Koons, the proposed account considers that occurrence to be one of the material substance's proper parts. It is, then, a mereological version of non-structural hylomorphism.

There are other key similarities and differences between hyloenergeism and the occurrence-based views of material objects introduced above, but these similarities and differences can only be appreciated once we have a more fully developed view of substantial

⁵²⁰ Since the notion of "prime matter" (understood as gunky stuff or otherwise) is so controversial, a proponent of hyloenergeism might try to do without it. There is space for a version of hyloenergeism according to which the material aspect of a material substance is particulate rather than gunky. Such a view would, I think, turn out to be very similar to van Inwagen's. But, for reasons I will give in section 4.4 below, I think that hyloenergeists ought to be committed to the existence of prime matter.

activities or substantial processes on the table. As a way of concluding this section of Chapter 4, then, I will now turn to precisely that task.

4.3.3 Substantial Activity, Substantial Process

According to the proposed account, the substantial form of a material substance is the substantial activity in which its material aspect is engaged or the substantial process that its material aspect is undergoing. But what is a substantial activity? What is a substantial process? As will be shown below, the notion of substantial activity or substantial process that is operative in hyloenergeism is, in many ways, similar to the notions of activity and process that are operative in the alternative approach to understanding the nature of processes introduced at the start of this chapter and the occurrence-based theories of material objects outlined above.⁵²¹

First, a substantial activity or substantial process is understood to be a type of occurrence or happening, i.e., something that occurs, happens, takes place, goes on, or is done. And, within the genus of occurrence or happening, substantial activities or substantial processes are also understood to be more like the activities of Vendler and Kenny and the processes of Mourelatos, Steward, Stout, and Steen than the events, states, or processes of Kim or Lombard. Like Vendler's and Kenny's activities, and Mourelatos's, Steward's, Stout's, and Steen's processes, substantial activities or substantial processes are indicated linguistically by the gerundive form of a verb in the progressive aspect, which is to say that they are indicated by verbs ending in 'ing'

⁵²¹ Given these influences, it should now be clear why I have been using, and will continue to use, the terms substantial activity and substantial process interchangeably. While, in other contexts, the terms 'activity' and 'process' may denote very different sorts of things, in the context of contemporary discussions of species of occurrence, Mourelatos's, Steward's, Stout's, and Steen's "processes" turn out to be very similar to Vendler's and Kenny's "activities". And because my own understanding of substantial activities or substantial processes is, in many ways, similar to the way Mourelatos, Steward, Stout, and Steen understand processes, I will often refer to such entities as substantial processes. However, I myself prefer the language of activity, and so I will also frequently drop the process language and refer to them simply as substantial activities. This shorthand is not meant to indicate any shift in ontological leanings.

and describe occurrences that were, are, or will be “in progress”.⁵²² Following Steen, then, we may speak of the substantial form of a cat as the activity or process of “catting” that a certain portion of prime matter is undergoing. As will become clearer later on, there are ways of further specifying the content of a material substance’s substantial activity or substantial process. For instance, there is more that we can say about a cat’s substantial activity than that it is an activity or process of “catting”. Nonetheless, the gerundive locution that I have borrowed from Steen can for now serve as a sort of placeholder for what the substantial activity turns out to be.

Second, like Steen’s processes and van Inwagen’s lives, a substantial activity is a particular, non-repeatable activity or process. As we saw in Chapter 2, for Aquinas, nothing outside of the mind is universal or common; everything in an individual substance is particularized. And, though I do not have the space to enter into the relevant discussions here, I myself tend to think that qualitative similarity, even among activities or processes, can be accounted for without the introduction (as things in the world) of universals. On the present account, then, the substantial activity of a material substance is, like all of the rest of its formal components, a trope-like particular, not a universal.

Like Koslicki’s and Jaworski’s structures, substantial activities or substantial processes are also kind-specific and kind-specifying. An individual material substance is a member of its kind or species because it possesses a certain type of substantial activity. And members of distinct kinds or species can be distinguished from one another by their qualitatively distinct substantial activities. The substantial activity of any given material substance, then, is at least numerically distinct from the substantial activity of any other material substance. Now, for any two material substances of the same kind or species, their substantial activities will be *merely*

⁵²² For a helpful overview of the progressive aspect and the various ways in which it contrasts with the perfective aspect, see: Zoltan Gendler Szabo, “On the Progressive and the Perfective”, *Noûs*, Vol. 38, No. 1 (Mar., 2004): pp. 29-59; Zoltan Gendler Szabo, “Things in Progress”, *Philosophical Perspectives*, Vol. 22 (Dec., 2008): pp. 499-525.

numerically distinct. But for any two material substances of two different kinds or species, their substantial activities will be both numerically *and* qualitatively distinct.

Like Karmo's disturbances and Steen's processes, a substantial activity is always the substantial activity *of* something.⁵²³ In the case of composite material substances, there are actually at least three sorts of things that a substantial activity can be said to be the substantial activity of. First, on the proposed account, the substantial activity of a material substance has as its ultimate subject prime matter. Prime matter is that in which the substantial activity inheres. As a result, the substantial activity of a material substance is said to be the substantial activity *of* prime matter. Now, strictly speaking, the substantial activity or substantial process of a material substance is not an *action* that its prime matter performs, or a *change* that its prime matter undergoes with respect to one or more of its properties. For, as we saw in Chapter 2, prime matter is itself a purely potential substratum. As a result, prime matter is not the right sort of thing to perform any sort of action,⁵²⁴ and it is not the right sort of thing to possess any of its own properties.⁵²⁵ Minding this restriction, I think we can, however, speak of the substantial activity of a material substance as occurring *in* prime matter in the sense that prime matter is its "subject", "host", "medium" or "container". And insofar as it is its subject, host, medium, or

⁵²³ As will hopefully be clear by the end of the present discussion, the substantial activity of a simple or elemental material substance will only be "of" something in the first and third senses. And the substantial activity of an immaterial substance will only be "of" something in the third sense. If God is understood to be his own substantial activity, then this will be the lone exception to the rule.

⁵²⁴ The present account, then, distinguishes between an *action*, an occurrence that entails that its subject is an agent of some sort, and an *activity* or *process*, an occurrence that does not entail, but may permit, that its subject is an agent of some sort. For more on this important distinction, see Steen, "Stuff, Process, and Object", p. 249.

⁵²⁵ Strictly speaking, any property that is ostensibly possessed by an object's prime matter is, in reality, possessed by the material substance of which it is a part. There are, however, certain properties possessed by a material substance that are more "intimately related" to its matter than to its form, such as the particular quantitative dimensions that it occupies at any moment (see, for example: Aquinas, *In BT*, Q. 4, A. 2; Aquinas, *DEE*, Ch. 6). And so while, strictly speaking, prime matter cannot be said to possess any properties of its own, there may be a loose sense in which prime matter can be said to possess the properties that "follow principally upon" it or those that are ontologically prior to a material substance's other accidents. For example, it might be said (in the aforementioned, loose sense) that the matter of a material substance is what possesses the quantitative dimensions that the material substance of which it is a part occupies.

container, I think that we can also speak of prime matter, in the non-agential sense, as *engaging in, participating in, or undergoing* its substantial activity. It is in this way, then, that the substantial activity of a material substance is said to be the substantial activity of that material substance's prime matter.

On the proposed account, despite the fact that it is prime matter that is the ultimate material aspect of any material substance, individual material substances can also be said to have various "derivative" material components, material parts that are the result of the substantial form's influence on prime matter, such as the more recognizable elemental and functional parts of a living organism. As we saw in Chapter 3, such parts are said to be derivative because they owe their existence and their identity to the substantial form of the material substance of which they are parts. Now, on the proposed account, the substantial form of a material substance is a certain substantial activity. And so the material parts of a material substance owe their existence and their identity to the substantial activity of the material substance of which they are parts. As a result, the material parts of a material substance can also be said to engage in, participate in, or undergo that material substance's substantial activity in the sense that their existence and their identity are necessarily tied to that activity's occurrence. Importantly, for any material part to cease to engage in that activity would be for that part to not only cease to be a part of the composite substance, but also for that part to cease to exist. In this way, then, the substantial activity of a material substance can also be said to be the substantial activity of the various material parts of a material substance.

Finally, according to the proposed account, the substantial activity that belongs to a particular material substance belongs to it as an essential metaphysical part of that substance. As a result, a substantial activity can also be said to be the substantial activity *of* a particular material

substance in the sense that that activity is partially constitutive of it. Now, importantly, since the very existence of the material substance depends on the existence of its substantial activity, the substantial activity should, once again, not be construed as some particular action that the material substance performs or some particular change that it undergoes (lest there be a sort of bootstrapping problem for material substances).⁵²⁶ But the substantial activity can still be said to belong to the material substance inasmuch as it is its principal formal part. In this way, then, a substantial activity can also be said to be the substantial activity of a particular material substance.

Moving on to some of the more controversial features of substantial activities, like Vendler's and Kenny's activities, and Mourelatos's, Steward's, Stout's, and Steen's processes, I think that a substantial activity or substantial process should be understood to be at least "extremely homogeneous". Recall that, to say that a process or activity is homogeneous is to say that, at some level of decomposition, each of its "parts" is of the same species as the whole. And to say that a process is extremely homogeneous is to say that, at some very basic level of decomposition, each of its "parts" is of the same species as the whole. Now, on my own preferred version of hyloenergeism, a substantial activity or substantial process is not only extremely homogeneous, but also *maximally* homogeneous, which is to say that at *any* level of

⁵²⁶ When Jaworski speaks of the substantial form of a material substance as an activity, he speaks of it as an activity performed by the whole (see, for example, Jaworski, *Structure and the Metaphysics of Mind*, pp. 104-105), but if that activity is responsible for the very existence of the whole, how can it also be something performed by the whole? Does the whole bring itself into existence by engaging in a certain kind of activity? I find Jaworski's remarks here puzzling, to say the least. It is interesting to note, however, that Aquinas himself regards various metabolic actions that an organism performs as actions of the organism itself, despite the fact that the organism would not be able to exist without the occurrence of at least some of these actions (see, for example, Aquinas, *In DA*, B. 2, L. 9; Aquinas, *QDA*, Q. 13, Co.; Aquinas, *ST*, I, Q. 76, A. 1, Co.) I say a bit more about such actions in Aquinas's ontology in section 4.5 below.

decomposition, each of its “parts” is of the same species as the whole.⁵²⁷ And, on this view, a substantial activity is maximally homogeneous in two ways.

First, a substantial activity is maximally *spatially* homogeneous. To say that a substantial activity is maximally spatially homogeneous is to say that, for any spatial part of the material substance with which the substantial activity is associated, the substantial activity of that material substance is itself occurring at that part. A substantial activity does not occur merely at the level of the whole, then, but also at the level of each of the parts. As a result, a substantial activity is, like a substantial form is said to be in Aquinas’s ontology, “holenmerically” present to the material substance of which it is the substantial activity.

On the preferred account, a substantial activity is also maximally *temporally* homogeneous. To say that a substantial activity is maximally temporally homogeneous is to say that, for any temporal interval during which a substantial activity can be said to occur, the substantial activity itself, and not some part of it, can also be said to occur during any part of that interval. In other words, the substantial activity of a material substance occurs not only during the whole of that material substance’s life, but also during any part of that life. As a result, a substantial activity is, like an *energeia*, “complete” at every moment at which it occurs, and, like a process is said to be in Stout’s Continuant Model of processes, “wholly present” at each moment during which it occurs. Following Stout and Steen, then, the substantial form of a material substance might be construed as a sort of an *enduring* activity or process. And, in this way, substantial forms should be understood to be distinct from any of the temporally extended,

⁵²⁷ Arguably, Vendler’s activities are intended to be maximally homogeneous in this way (see his *Linguistics in Philosophy*, pp. 101-102).

perduring occurrences featured earlier in this chapter, such as Lombard's events, Steward's processes, and the new mechanists' activities.⁵²⁸

On the preferred account, substantial activities or substantial processes are maximally temporally homogeneous. Before moving on to discuss some of their other features, I would like to make two important clarifications concerning this claim. First, to say that a substantial process is maximally temporally homogeneous is not to say that a material substance, or its matter, can undergo a change in its properties in an instant. As Lombard's Property-Exchange Model of events shows us, for a material substance, or its matter, to undergo a change in one or more of its properties, it would have to cease to exemplify a certain property and come to exemplify some other, contrary property. And since nothing can exemplify two contrary properties at the same time, neither a material substance nor its matter can undergo a change in one or more of its properties in an instant. On the preferred account, however, a substantial process is, importantly, *not* a change. Recall that, according to Steward's distinction between an event and a process, for any change that an object undergoes, there are actually two numerically distinct occurrences that take place: the event of the change and the process of the changing. When I go for a walk, for example, two sorts of things can be said to take place, according to Steward: the event of my walk, and the process of walking in which I am engaged throughout. On the preferred account, a substantial process is, like a process is said to be in Steward's account, a changing, which is numerically distinct from any of the changes involved. And so the fact that no change can occur in an instant does not necessarily entail that no substantial process can.

⁵²⁸ Since the notion of an "enduring occurrence" is so controversial, a proponent of hyloenergeism might try to do without it. There is space for a version of hyloenergeism according to which substantial activities or processes have temporal parts. But, for reasons I will give in section 4.4 below, I think that hyloenergeists ought to lend their support to the very small (but growing!) literature on enduring continuants.

Importantly, however, to say that a substantial activity is maximally temporally homogeneous is not necessarily to say that a material substance, or its matter, can be undergoing a changing in its properties in an instant either. To see why, consider the following two opposing theories of time. According to an Atomistic Theory of time, any temporal interval is ultimately decomposable into “instants”, temporal parts of that interval that do not themselves have any temporal duration and so cannot be further decomposed into smaller intervals. According to a Non-Atomistic, or “gunky” theory of time, there are no duration-less instants. On this view, every temporal interval can be decomposed into shorter temporal intervals, and those shorter intervals can themselves be decomposed into shorter intervals, *ad infinitum*, but time never bottoms out at duration-less instants. For any temporal interval, that interval can be split into smaller temporal intervals which themselves have a certain non-zero duration.⁵²⁹ If we accept an Atomistic theory of time, then to say that a substantial activity or substantial process is maximally temporally homogeneous *is* to say that a substantial activity or substantial process occurs at every instant of its duration. But if we accept a Non-Atomistic theory of time, then to say that a substantial activity or substantial process is maximally temporally homogeneous is just to say that for any temporal interval during which a substantial activity or substantial process occurs, that same substantial activity or process occurs at every sub-interval of non-zero duration into which that interval can be divided.

For Mourelatos, Steward, Stout, and Steen, processes are atelic, which is to say that a process does not necessarily culminate in any particular end. And, according to these authors, the

⁵²⁹ For discussions of Non-Atomistic or “gunky” theories of time, see: Dean W. Zimmerman, “Persistence and Presentism”, *Philosophical Papers*, Vol. 25, No. 2 (Jul., 1996): pp. 115-126; Joshua M. Stuchlik, “Not All Worlds are Stages”, *Philosophical Studies*, Vol. 116, No. 3 (Dec., 2003): pp. 309-321; Robert C. Koons and Timothy H. Pickavance, *Metaphysics: The Fundamentals* (Malden, MA: Wiley-Blackwell, 2015): pp. 202-211. It is worth noting that Aristotle appears to hold a gunky view of time (see, for example: Aristotle, R.P. Hardie and R.K. Gaye (trans.), *Physics*, in Jonathan Barnes (ed.), *The Complete Works of Aristotle*, Vol. 1 (Princeton, NJ: Princeton University Press, 1984): B. 6, Ch. 9), as does Aquinas (see, for example: Aquinas, *In Phy.*, B. 6, L. 11, 861).

fact that a process is atelic means that it could, in principle, continue indefinitely. In contrast to atelic occurrences, telic occurrences are those occurrences that do culminate in a particular end. And, according to these same authors, the fact that an occurrence is telic means that it has a built-in stopping point. Upon the achievement of its end, a telic occurrence necessarily ceases.

Here a proponent of hyloenergeism can go one of two ways. First, he or she could maintain that substantial activities are, like Mourelatos's, Steward's, Stout's, and Steen's processes, atelic occurrences in that they do not culminate in any particular end. On an atelic version of hyloenergeism, a substantial activity might turn out to be something like an activity or process of "self-expression" or "self-maintenance". In other words, the substantial activity of a material substance might, on this view, be a process or activity that its matter must be undergoing in order for the material substance to simply "be what it is", or it might be a process or activity in which its matter must be engaged at all times in order to keep the material substance from falling into non-existence.⁵³⁰ On the latter interpretation, substantial activities might look very much like the homeodynamic events that van Inwagen calls lives. (Though perhaps the notion of a "self-maintaining" substantial activity is broad enough to include the substantial activities of things other than living organisms.)

For reasons that will become clear in later sections, I myself am interested in developing a telic version of hyloenergeism. On a telic version of hyloenergeism, a substantial activity is not simply a process or activity of "self-expression" or "self-maintenance" but a process or activity of "self-perfection". The substantial activity of a material substance is the process that its matter must undergo, the activity in which it must be engaged, in order for the substance to achieve its end. On this view, the notion of substantial form or substantial activity is an irreducibly

⁵³⁰ According to Kosman, for instance, on Aristotle's view, the activity that is a thing's form is its "being what it is" (see, for example: Kosman, *Activity of Being*, p. 239).

teleological notion: the substantial activity of a material substance is always directed at a particular end.⁵³¹ Now, for various reasons, in certain cases, a substantial activity may not actually bring about the particular end in which it naturally culminates. But even in such cases it will still be true to say that the substantial activity is ordered to, and expressive of, a particular end.⁵³²

Given that, on such a view, a substantial activity or substantial process is ordered to, or expressive of, a particular end, I think that a proponent of telic hyloenergeism ought to also say that the particular end that a substantial activity or substantial process is ordered to, or expressive of, is what makes that substantial activity or substantial process the kind of activity or process that it is. Now, once again, in certain cases, a substantial activity or substantial process may not actually bring about the particular end in which it naturally culminates. This does not mean, however, that the substantial activity or substantial process has failed to be what it is. The identity of a substantial activity or substantial process is tied to the end to which it is directed, not the end that it actually achieves. On a telic version of hyloenergeism, then, substantial activities or substantial processes are understood as telic occurrences, in that they naturally culminate in, and are also specified by, particular ends.

⁵³¹ Since the notion of natural teleology or “non-intentional end-directedness” is so controversial, a proponent of hyloenergeism might try to do without it. That is why I have left open the possibility of an atelic version of the view. There is, however, a small (but growing!) literature on the plausibility of “non-intentional end-directedness” in contemporary metaphysics (see, for example: John Hawthorne and Daniel Nolan, “What Would Teleological Causation Be?”, in John Hawthorne, *Metaphysical Essays* (Oxford: Clarendon Press, 2006): pp. 265-284; David S. Oderberg, “Teleology: Inorganic and Organic”, in Ana Marta Gonzalez (ed.), *Contemporary Perspectives on Natural Law* (Aldershot: Ashgate, 2008): pp. 259-279; David S. Oderberg, “Finality Revived: Powers and Intentionality”, *Synthese*, Forthcoming (2016); Nicky Kroll, “Progressive Teleology”; Nicky Kroll, “Teleological Dispositions”, in Dean W. Zimmerman and Karen Bennett (eds.), *Oxford Studies in Metaphysics*, Forthcoming). And, for reasons that should become clear by the end of this chapter, I think that a proponent of hyloenergeism ought to prefer the telic version of the view. It should be noted that Machamer, Darden, and Craver’s activities are telic in that they are essentially productive of certain kinds of effects (see Machamer, Darden, and Craver, “Thinking About Mechanisms”; Illari and Williamson, “In Defense of Activities”, p. 71).

⁵³² For a helpful discussion of the end-directedness of processes or “events in progress”, see Kroll, “Progressive Teleology”.

According to telic hyloenergeism, the end to which a substantial activity or substantial process is ordered is the principal end or telos of the material substance of which it is a part. And the principal end or telos of a material substance is that in which its flourishing consists (whatever that is).⁵³³ On a telic version of hyloenergeism, then, the substantial activity of a material substance is the process or activity that its prime matter is undergoing so as to bring about that which constitutes the flourishing of the material substance of which it is a part.⁵³⁴ As a result, we might describe the substantial activity of a material substance as a sort of “striving” of its matter for its (the material substance’s) principal end or telos. Importantly, the substantial activity or substantial process of a material substance is not the striving of its prime matter to be a certain sort of thing. It is the striving of its prime matter for a certain state or condition of flourishing. And in so striving, that prime matter gives rise to a certain sort of thing, an individual material substance.

To help make these claims slightly more clear, let me offer the following example. The substantial activity of a cat is a process or activity of “catting” that its prime matter is undergoing. The “catting” that the cat’s prime matter is undergoing is a telic occurrence, meaning that, by virtue of engaging in, participating in, or undergoing that process of “catting”, the cat’s prime matter (and, in the constitutive sense, the material substance of which it is a part) can be said to “strive” for or “pursue” a particular end. Now, the particular end for which our cat’s prime matter is “striving” is that in which the cat’s flourishing consists. Let us say that a cat’s flourishing consists in the action of catching mice (the reader may replace the action of catching mice with whatever he or she thinks the flourishing of a cat consists in). The substantial

⁵³³ In some cases, the principal end or telos of a substance might be an action. In other cases, it might be a state or a relationship. The present account aims to remain neutral concerning in what precisely a thing’s end or telos consists.

⁵³⁴ For Kroll, “events in progress” are directed to static ends, particular states-of-affairs (*Ibid*). For Machamer, Darden, and Craver activities are essentially causal, and so are directed to their effects (see Machamer, Darden, and Craver, “Thinking About Mechanisms”).

activity of our cat, then, is the striving of its prime matter (and also, in the constitutive sense, of the cat itself) for the action of catching mice. And in so striving, the prime matter comes to constitute, together with its striving, the cat. On the present account, the cat is a material substance, and so is said to include among its essential metaphysical parts, the prime matter that is striving for the action of catching mice, and the striving itself, the directional activity that that prime matter is undergoing.

According to the authors discussed above, the fact that an occurrence is telic means that it has a built-in stopping point. Upon the achievement of its end, a telic occurrence necessarily ceases. Despite the fact that, on a telic version of hyloenergeism, a substantial activity is ordered to, or expressive of, a particular end, and so, in that respect, counts as a telic occurrence, a substantial activity, it seems to me, need not fit the second half of this description of such occurrences. Just because a substantial activity is ordered to a particular end, I do not think that this means that a substantial activity or substantial process must be terminated in the achievement of that end, that it must necessarily cease upon its realization. Rather, I think that a proponent of telic hyloenergeism should say that a substantial activity remains, and remains precisely what it was, even upon the achievement of its end. Similar to the way in which my power to drink water remains even while I am actually drinking water, I think we can plausibly say that the striving of a material substance's matter toward the material substance's end remains even when the material substance is actually enjoying its end. This is where the standard description of telic occurrences goes wrong, I think. There is room for a conception of telic occurrences according to which some telic occurrences naturally culminate in a particular end

without ceasing in that end. And, on the present account, substantial activities or substantial processes are occurrences of precisely this sort.⁵³⁵

Like Steen's processes, substantial activities are unlike states in that, in most cases, they involve change. As I have been keen to emphasize in this section, however, a substantial activity is not itself a change in its subject; it is, in most cases, a changing. Now, the occurrence of a changing in a subject does seem to imply that the subject has changed or will have changed as a result. However, I would also like to leave room here for the possibility that not all substantial activities are changings, and not all substantial activities require that their subjects undergo a change in one or more of their properties. There may, for instance, be substantial activities that do not require any change in the material substances of which they are proper parts.⁵³⁶ And the very same substantial activity might even manifest itself as a certain sort of changing at one time and as something other than a changing at others. For instance, until a material substance has achieved its end, until it is actually enjoying its flourishing, its substantial activity will manifest itself as a changing in its matter. For, indeed, the matter or the material substance of which it is a part must change if the material substance is not presently flourishing. But, when the material substance has achieved its end, for however long it actually possesses that in which its flourishing consists, its substantial activity need no longer manifest itself as a changing. The matter or the material substance of which it is a part need not change if that material substance is already in a state of flourishing. Nevertheless, the striving of the matter toward that which constitutes the flourishing of the material substance of which it is a part must continue

⁵³⁵ Kroll similarly rejects the idea that a telic occurrence must cease in the achievement of its end, but for him this is due to the fact that telic occurrences can, upon achieving their original end, continue on as ordered to a new, further end (perhaps *ad infinitum*). See, for example: Kroll, "Progressive Teleology", pp. 17-18.

⁵³⁶ Kroll, for instance, thinks that there can be "events in progress" in a changeless world. See, for example, Nicky Kroll, "Temporal Passage and Events in Progress", Unpublished Manuscript. If God turns out to be His own substantial activity, then God will be an example of a substantial activity that does not manifest itself in a changing in its subject.

throughout. The continual striving of a material substance's matter toward that which constitutes its flourishing is, as I understand it, a necessary condition for the enjoyment of the achievement of that flourishing. Much like my power to drink water must continue to be present when I am actually drinking water, the striving of a material substance's matter to achieve a certain end must continue to be present when the material substance is actually enjoying that end.

Putting all of these points together, we can summarize the various claims made about substantial activities or substantial processes in this section as follows. On the proposed account, a substantial activity or substantial process is a species of occurrence, indicated linguistically by the gerundive form of a verb in the progressive aspect, having each of the following features:

- (1) A substantial activity is a particular or token occurrence, meaning that it is not repeatable and not shared by any two material substances.
- (2) A substantial activity is kind-specific and kind-specifying, meaning that a material substance qualifies as a member of a certain kind or species because it possesses a certain substantial activity.
- (3) In the case of composite material substances, a substantial activity is the substantial activity of prime matter, the material parts of the composite material substance, and the material substance itself.
- (4) A substantial activity is maximally spatially homogeneous, meaning that, for any spatial part of the material substance with which the substantial activity is associated, the substantial activity of that material substance is itself occurring at that part.
- (5) A substantial activity is maximally temporally homogeneous, meaning that, for any interval during which a substantial activity can be said to occur, the substantial activity itself, and not some part of it, can also be said to occur during any part of that interval.
- (6) A substantial activity is telic, meaning that it is ordered to, but not terminated in, a particular end.
- (7) A substantial activity is specified by the particular end to which it is ordered.

(8) A substantial activity is inherently dynamic, meaning that it typically, but perhaps not necessarily, manifests itself as a changing in its subject.⁵³⁷

4.4 Hyloenergeism vs. Structural Hylomorphism

4.4.1 Explanatory and Theoretical Virtues

Having presented the main tenets of a hyloenergeist conception of substantial form in the previous section, I would now like to outline what I take to be the main theoretical and explanatory virtues of hyloenergeism in general. In what follows, I will argue that hyloenergeism not only preserves all of the theoretical and explanatory virtues of Neo-Aristotelian and Thomistic structural hylomorphism, but also has the resources to circumvent several of the main objections to structural hylomorphism that were introduced in Chapter 1.

First, because it is a version of hylomorphism, hyloenergeism can offer the same general strategy offered by structural hylomorphists for resisting the ontological reduction of a composite material object to its material parts. As I pointed out in Chapter 1, intuitively, many of the composite material objects with which we are familiar appear not to be mere heaps or sums of their material parts. Something more must be true of those parts if they are to compose a numerically distinct composite whole. For structural hylomorphism, what must be true of those parts is that they must to be arranged, organized, configured, or structured in some particular way. And since the structure or configuration of those parts is meant to be both a necessary feature of the material object that they compose and something other than those parts, according

⁵³⁷ The features listed here are some of the main features that a substantial activity may be said to have according to my own preferred version of hyloenergeism. But, as I have been keen to emphasize throughout this section, there could also be versions of hyloenergeism that modify or even reject one or more of these features. For example, as I pointed out earlier, there is space for both telic and atelic versions of hyloenergeism. And a proponent of hyloenergeism might not have to say (and might not even want to say) that substantial activities are, in addition to being extremely homogeneous, also maximally homogeneous. As will be shown below, however, each of the eight features listed here serves some theoretical or explanatory purpose. And so, in what follows, unless specified otherwise, the hyloenergeic account of material objects that I will be defending should be understood as including a conception of substantial activity according to which the substantial activity of a material substance possesses all eight of these features, as well as the features detailed in earlier sections.

to structural hyломorphism, no composite material object is ever reducible to its material constituents alone. Hyloenergeism tells a similar story. For hyloenergeism, what must be true of a certain set of material objects if they are to compose a numerically distinct composite whole is that they must be collectively engaged in a certain kind of activity or process. And since, according to hyloenergeism, the activity or process that those parts are undergoing is both a necessary feature of the material substance of which it is a part and something other than its material constituents, hyloenergeism, too, resists the ontological reduction of a composite whole to its material constituents.

Second, because it is a version of mereological hyломorphism, hyloenergeism can offer the same general solution offered by structural hyломorphists to the Grounding Problem. Recall that the Grounding Problem arises when we consider cases of spatio-temporally coincident, but, nevertheless, numerically distinct, material objects. Consider, for example, the case of a living organism and its body. An organism and its body share all of their material parts for at least a certain portion of their careers. But even during their period of overlap we might think that the two are numerically distinct material objects. This is due to the fact that they each have different modal properties: the body could, presumably, survive a fatal heart attack; the organism, presumably, could not. But what grounds these modal differences? How could an organism and its body have different modal properties when they are both made up of the very same parts? Hyloenergeism's solution to this puzzle is similar to Koslicki's solution to the puzzle of the statue and the clay: the two material objects being considered do not actually share all of the same parts, even during their period of overlap. The organism is composed of all of the same material parts as its body, but it also has, as an additional essential part not had by the body, a

certain kind of activity or process.⁵³⁸ (This is indicated by the fact that an organism is essentially alive, whereas its body is not.) And the fact that the organism has, as one of its proper parts, a certain kind of activity or process, which is not also possessed by the body, explains why it has a different modal profile. The reason why the organism could not survive a fatal heart attack is because a fatal heart attack would cause it to lose its principle formal part – the substantial activity that is, or is intimately related to, its life.⁵³⁹ As a result, hyloenergeism, like structural hylomorphism, can offer a mereological solution to the Grounding Problem.⁵⁴⁰

Third, hyloenergeism also offers a similarly systematic approach to natural kinds. As I mentioned in the previous section, substantial activities or substantial processes are both kind-specific and kind-specifying. An individual material substance is a member of its kind or species because it possesses a certain type of substantial activity, that is, because its matter is presently undergoing a certain type of substantial activity or process. And members of distinct kinds or species are distinguished from one another by their qualitatively distinct substantial activities, that is, by the qualitatively distinct substantial activities or processes that their matter is undergoing. Hyloenergeism's approach to natural kinds becomes slightly more complicated if we also accept a telic version of the view. According to telic hyloenergeism, substantial activities are ordered to, and expressive of, particular ends. Substantial activities are also specified by the ends to which they are ordered. Any particular substantial activity, then, is the particular kind of

⁵³⁸ Strictly speaking, an organism, qua material substance, is composed of a particular substantial activity and prime matter, but, there is also a loose sense in which an organism can be said to be composed of its body and the activity in which that body is engaged. It is in this loose sense that the mereological description here is intended.

⁵³⁹ Depending on how we understand the notion of a life, on an atelic version of hyloenergeism, the substantial activity of a living organism may just be the event of its life. On a telic version of hyloenergeism, the substantial activity of a living organism might be some more fundamental striving of its matter toward a particular end, which manifests itself in a certain kind of life. Either way the substantial activity of a living organism ceases at death.

⁵⁴⁰ What is interesting about this case in particular is that, unlike the case of the statue and the clay, the difference between these two composite material objects cannot obviously be spelled out in structural terms. Could not a recently deceased body have all of the same structural features that the living organism had moments before its death? I say a bit more about this potential advantage of hyloenergeism in section 4.5 below.

substantial activity that it is because of the particular end to which it is ordered. And substantial activities of distinct kinds are distinguished from one another by their distinct ends. Now, because material substances are specified by their substantial activities and substantial activities are specified by their ends, it also follows that material substances are specified by their ends. A particular material substance is of a certain kind or species if and only if its matter is actively engaging in a certain activity or process that naturally culminates in the end that is characteristic of members of that kind or species.

Finally, hyloenergeism also offers a similarly restricted theory of composition. Recall that, according to mereological universalism, for any arbitrary set of existing material objects, there also exists some further material object that is composed of all and only the members of that set. Mereological universalism, then, admits the existence of many more composite material objects than we normally take there to be. For instance, if it is in fact the case that for any arbitrary set of existing material objects, there also exists some material object composed of all and only the members of that set, then not only do cars, houses, tables, chairs, plants, animals, and people exist, but so do such “mereological monsters” as the object composed of my left thumb, my mother’s knee, and the Empire State Building. On the other side of the spectrum, according to mereological nihilism, for any set of existing material objects, there never exists some further material object that is composed of the members of that set. Mereological nihilism, then, admits the existence of far fewer composite material objects than we normally take there to be. For instance, not only are there no “mereological monsters” such as the object composed of my left thumb, my mother’s knee, and the Empire State Building, but there are also no cars, houses, tables, chairs, plants, animals, or people. Commonsense tells us that the correct theory of composition lies somewhere in the middle. If there were some plausible restricted theory of

composition that could capture most, if not all, of our intuitions here, then, all other things being equal, that theory would be preferable to the two extreme views just discussed.

As I pointed out in Chapter 1, structural hylomorphism offers one such restricted theory of composition. According to structural hylomorphism, for any set of material objects, the members of that set compose some further material object if and only if those objects jointly realize or instantiate certain relational or structural features. If they are not arranged or configured in the right way, the members of that set fail to compose anything at all. And since my left thumb, my mother's knee, and the Empire State Building do not jointly realize or instantiate any kind of relational or structural features, structural hylomorphism's restricted theory of composition entails that those objects fail to compose some further material object. Hyloenergeism tells a similar story. According to hyloenergeism, for any set of material objects, the members of that set compose some material substance if and only if those objects are collectively engaged in a certain kind of activity or process. If they are engaged in no activity or process whatsoever, or are not engaged in the right kind of activity or process, then the members of that set fail to compose a material substance. And since my left thumb, my mother's knee, and the Empire State Building are not collectively engaged in any kind of activity or process whatsoever, hyloenergeism entails that those objects fail to compose a material substance.

Hyloenergeism, then, offers a similarly restricted theory of composition. But is hyloenergeism's restricted theory of composition plausible? Does it admit the existence of all and only the right sorts of composite material objects? On the one hand, it might seem that hyloenergeism's restricted theory of composition is too restricted. For it seems that hyloenergeism can only admit the existence of composite material objects whose material constituents are active, whose material constituents are actually doing something. More than that,

it seems that hyloenergeism can only admit the existence of composite material objects whose material constituents are collectively engaged in a *singular* activity or process. On the other hand, it might seem that hyloenergeism's restricted theory of composition is not restricted enough. For it seems that hyloenergeism would say that whenever two or more human persons are collectively engaged in a certain activity or process those persons come to compose some numerically distinct composite material substance.

The key thing to notice about hyloenergeism's restricted theory of composition is that it explicitly pertains to material *substances*. The formulation above does not say that for any set of material objects, the members of that set compose some further material *object* only if those objects are collectively engaged in a certain kind of activity or process, but that the members of that set compose some material *substance* only if they meet the relevant requirement. Recall that hyloenergeism recognizes two types of composite material objects: material substances and material artifacts. The restricted theory of composition introduced above is meant to capture the compositional requirements of material substances. And so, while it is true that hyloenergeism recognizes as material substances only those material objects whose material constituents are collectively engaged in a singular process or activity, this does not entail that hyloenergeism cannot recognize the existence of composite material objects that do not fulfill this criterion.

A proponent of hyloenergeism *could* stipulate that this restricted theory of composition applies to all composite objects. On such a view, every composite material object would be such that its parts are necessarily collectively engaged in a certain activity or process. There simply would be no inert composite material objects. A proponent of hyloenergeism need not say this, however. He or she could stipulate that some other restricted theory of composition applies to composite material artifacts. What account should be given of material artifacts, then? Perhaps

the hyloenergeist should say that structural hylomorphism's restricted theory of composition applies to artifacts, to non-substantial composite material objects. This would allow hyloenergeism to admit the existence of all of the same composite material objects as structural hylomorphism while also recognizing a distinctively robust type of composite material object not recognized by structural hylomorphists.⁵⁴¹ For, even if hyloenergeism borrows structural hylomorphism's restricted theory of composition for its account of certain artifacts, it also has a more restricted theory of composition for its account of material substances. Material substances are those composite material objects whose parts are not only structurally integrated but *cooperatively* integrated, that is to say, integrated by a certain joint activity or process. And this does seem like an important distinction. It seems to me that there ought to be a difference in kind between the principle of unity that is characteristic of the parts of a table or a statue and the principle of unity that is characteristic of the parts of a cat or a sunflower. Hyloenergeism's restricted theory of composition validates this intuition. And I think that this is an important point in its favor.

Hyloenergeism's distinction between composite material substances and composite material artifacts also allows it to respond to the second concern introduced above concerning its restricted theory of composition. According to hyloenergeism's restricted theory of composition, for any set of material objects, if the members of that set are collectively engaged in a certain kind of activity or process, then those objects compose a material substance. The key thing to notice about this formulation is its stipulation that members of a set of material objects need to be engaged in a certain *kind* of activity or process in order to compose a material substance. Recall that hyloenergeism recognizes two types of activities or processes: substantial activities or

⁵⁴¹ It would also allow hyloenergeism to utilize structural hylomorphism's mereological solution to the Grouding Problem in cases involving seemingly inert composite material objects, such as the statue and the clay.

substantial processes, those activities or processes that are essential to the material substances of which they are parts and to each of their material constituents, and accidental activities or accidental processes, the activities or processes that material substances or their material constituents can undergo or cease to undergo over time without thereby ceasing to exist. The restricted theory of composition introduced above refers to substantial activities. And so for two or more human persons to compose a composite material substance, the activity or process in which those human persons are collectively engaged would have to be such that those human persons and their material constituents could not cease to engage in that activity or process without thereby ceasing to exist. The fact that, in such cases, the human persons involved (and their material constituents) do, or at least could, continue to exist upon the cessation of their joint activity or process indicates that that joint activity or process is not a substantial activity. And thus it would not follow from hyloenergeism's restricted theory of composition that those human persons compose some composite material substance upon their initiation in a joint activity or process.

A proponent of hyloenergeism can say, however, that in such cases the human persons involved do come to compose some kind of composite material artifact. For, according to hyloenergeism, the principal formal aspect of a material artifact is something less than a substantial form. The principal formal aspect of a material artifact is a certain accidental form. And the accidental activity or process in which those human persons are collectively engaged may be identified as a form of precisely that sort. This would allow hyloenergeism to admit the existence of human collectivities as composite material artifacts while also giving an explanation as to why such composite material objects appear to be material objects of a lesser sort than the human persons themselves. According to hyloenergeism, human collectivities are material

objects of a lesser sort because their principal formal aspects are accidental activities, not substantial activities, and as a result, they do not satisfy the compositional requirements for membership in the distinctively robust ontological category that is the category of substance.⁵⁴²

Hyloenergeism, then, preserves all, or almost all, of the theoretical and explanatory virtues of Neo-Aristotelian and Thomistic structural hylomorphism. Unlike structural hylomorphism, however, hyloenergeism does require some rather significant ontological commitments. In section 4.3 above, I explained that there are more and less radical versions of hyloenergeism. And so a proponent of hyloenergeism can scale back her ontological commitments to some extent. But, minimally, hyloenergeism requires a commitment to the existence of substantial activities - activities which are to be distinguished from any of the properties possessed by, and any of relations that hold of, any of the material constituents of composite material substances, but are nevertheless to be included among the proper parts of the material substances with which they are associated. If we were to weigh the costs and benefits of these two approaches to material objects based only on the features discussed thus far, structural hylomorphism would, by virtue of having fewer ontological commitments, seem to be the preferable account. These are not, however, the only relevant features that need to be weighed. There are advantages unique to a hyloenergeic account of material objects. Indeed, in the next section, I will argue that the more controversial aspects of hyloenergeism allow it to circumvent several of the main objections to structural hylomorphism that were introduced in Chapter 1.

⁵⁴² One further advantage that hyloenergeism may have here is that its restricted theory of composition for material substances gives an account not only of what it is for a composite material object to be a material substance but also what it is for a simple or elemental material object to be a material substance. The notion of activity or process does not, like the notions of relation, structure, or configuration, imply a plurality of relata. A simple material substance can be said to possess a certain activity or process, whereas it cannot be said to possess a certain internal polyadic relation or an internal material structure. Hyloenergeism's restricted theory of composition, then, allows it to provide a more comprehensive analysis of what it means to be a material substance.

4.4.2 Three Main Objections Revisited

4.4.2.1 Posteriority and Causal Overdetermination

In Chapter 1, I argued that Neo-Aristotelian structural hylomorphism's conception of substantial form as a polyadic relation or structure commits it to a preservationist diachronic theory of composition, and that a preservationist diachronic theory of composition, when paired with Neo-Aristotelian structural hylomorphism's anti-reductionist account of composite material objects, gives rise to a certain sort of systematic causal overdetermination. The argument can be summarized as follows. According to Neo-Aristotelian Structural Hylomorphism's Basic Theory of Composition, when certain material objects are structured in a certain way, those objects give rise to a numerically distinct composite whole. Now, the fact that some particular material objects happen to be structured in a certain way is, in most cases, a contingent feature of those objects. It is not essential to those particular material objects that they be structured in that particular way. They might have existed long before they were given that structure, and they might also exist long after that structure has been removed. Rarely do material objects cease to exist or even cease to be the kinds of things that they were upon being structured in some particular way. Confirming this intuition, many Neo-Aristotelian structural hylomorphists espouse what I have called a preservationist diachronic theory of composition. According to Neo-Aristotelian Structural Hylomorphism's preferred Diachronic Theory of Composition, when certain material objects come to be structured in a certain way, those objects, without undergoing any significant change in either their intrinsic natures or external behaviors, come to compose, along with that structure, some numerically distinct, composite whole.

According to my argument, it is precisely this claim that can be shown to introduce a certain sort of systematic causal overdetermination for Neo-Aristotelian structural

hylomorphism. For, if the material objects that come to compose numerically distinct composite wholes when structured in the appropriate way maintain their intrinsic natures and external behaviors upon being so structured, then, in certain cases, those material objects and the numerically distinct composite wholes of which they have become parts can both be said to cause the very same effects. For example, if five pieces of wood can collectively break a window on their own, and if those pieces also maintain their intrinsic natures and external behaviors when they are put together to form a table, then, if I later throw the table through the window, breaking it, then, unless we consider the table itself to be causally inefficacious, it looks like the five pieces of wood and the table that they compose can both be said to cause the window's breaking. As a result, the window's breaking is causally overdetermined: there are two, numerically distinct causes of its breaking, either of which would have been sufficient by itself to bring about the effect.

Earlier I pointed out that this sort of causal overdetermination is likely to be ubiquitous for Neo-Aristotelian structural hylomorphism. It would seem that, for any composite whole, if Neo-Aristotelian structural hylomorphists consider that whole to be causally efficacious, then it will, together with its material constituents, overdetermine its effects. In order to avoid *systematic* causal overdetermination, then, Neo-Aristotelian structural hylomorphists may need to shift their support to some alternative diachronic theory of composition. But since, as I have shown, their commitment to a preservationist diachronic theory of composition is closely tied to their conception of substantial form as a polyadic relation or structure, it looks unlikely that they will be able to pursue that sort of strategy.⁵⁴³

⁵⁴³ I would like to emphasize once more that Neo-Aristotelian structural hylomorphists cannot avoid systematic causal overdetermination by simply denying the existence of tables or statues, for there is nothing special about these particular examples. For *any* composite whole recognized by Neo-Aristotelian structural hylomorphists, if *any*

I think that hyloenergeism has the resources to avoid this sort of objection to structural hylomorphism. In what follows, I will argue that hyloenergeism's radically different approach to substantial form allows it to accommodate an alterationist or an annihilationist diachronic theory of composition for material substances. And this, in turn, allows hyloenergeism to avoid the kind of systematic causal overdetermination that arises for structural hylomorphism due to its commitment to preservationism.

According to hyloenergeism, the substantial form of a material substance is a certain kind of activity or process that its material aspect is undergoing. Hyloenergeism's alternative conception of substantial form, then, straightforwardly commits it to the following basic theory of composition: when certain material objects participate in a certain kind of activity or process, those objects give rise to a numerically distinct composite material substance. This much should be clear from the foregoing. Hyloenergeism's own *diachronic* theory of composition, is, however, a bit more difficult to determine.

One might think that hyloenergeism's conception of substantial form as activity or process commits it to a preservationist diachronic theory of composition for the same, or very similar, reasons that structural hylomorphism's conception of substantial form as a polyadic relation or structure does. The fact that some particular material objects happen to be participating in a certain activity or process would, in most cases, appear to be a contingent feature of those objects. It is not essential to those particular material objects that they be engaged in that particular activity. Those objects might have existed long before they began to participate in that activity, and they might also exist long after that activity has ceased. Rarely do

of the material objects that gave rise to it are taken to have been preserved through the introduction of that whole, then those material objects will overdetermine at least some of the effects caused by the whole.

material objects cease to exist, or even cease to be the kinds of things that they were, upon engaging in some particular activity.

This suggestion, however, fails to take note of the fact that, according to hyloenergeism, the substantial form of a material object is a *substantial* activity, not an accidental activity. And this distinction makes all the difference. According to hyloenergeism, a substantial activity has two important features not shared by any accidental activity: singularity and essentiality. A substantial activity is singular in that each material substance has one and only one substantial activity. Even in a composite material substance, there is one single substantial activity that serves as the substantial activity of the whole and of each of its parts. This is so because the unity or oneness of any composite material substance is grounded in the unity or oneness of its substantial activity. For a composite material substance to be one thing in the robust sense it must have one, and only one, substantial activity. A substantial activity is essential to its possessor in that any material object that participates in a substantial activity cannot cease to participate in that same substantial activity without thereby ceasing to exist. This is so because the existence (that it is) and identity (what it is) of any material object are grounded in the existence and identity of its substantial activity.⁵⁴⁴

If each material substance has one and only one substantial activity, and if what makes a material object a material substance is the possession of its own substantial activity, then it also follows that none of the material parts of a composite material substance are themselves material substances.⁵⁴⁵ The relevance of this claim for determining hyloenergeism's diachronic theory of

⁵⁴⁴ As we saw in Chapter Three, Aquinas makes similar claims about substantial form (see section 3.3 above). Though I do not have the space to rehearse all of his arguments for these claims here, the reasons that Aquinas gives for the unicity and essentiality of substantial form can also be used to support the unicity and essentiality of substantial activity.

⁵⁴⁵ As we saw in Chapter Three, Aquinas draws the very same conclusion concerning composite material substances from his own commitment to the unicity of substantial form. See section 3.3 above.

composition is, as follows: if none of the material parts of a composite material substance are themselves substances, then, if there were some pre-existing material substances that gave rise to that composite material substance, then, when the composite material substance comes to be, those material substances either no longer exist or have become so altered that they no longer count as substances.

Hyloenergeism's more controversial ontological commitments can be seen, then, to support either an annihilationist or an alterationist diachronic theory of composition. And, in so doing, they can also be seen to provide hyloenergeism with at least two ways of avoiding systematic causal overdetermination. First, if a proponent of hyloenergeism takes the annihilationist route, then, when certain pre-existing material substances come to jointly participate in some singular substantial activity such that they may be said to give rise to a numerically distinct composite material substance, those pre-existing material substances cease to exist when the composite whole comes to be. And so, even if those material substances did possess certain causal powers before being so joined, there is no time at which those material substances and the numerically distinct composite whole to which they give rise can both be said to exist, let alone to cause some effect. Thus, on an annihilationist version of hyloenergeism, there is no systematic causal overdetermination for material substances.⁵⁴⁶

Second, if a proponent of hyloenergeism takes the alterationist route, then, when certain pre-existing material substances come to jointly participate in some singular substantial activity such that they may be said to give rise to a numerically distinct composite material substance, those pre-existing material substances are altered when the composite whole comes to be such that, if those objects do continue to exist (as proper parts of the composite whole to which they

⁵⁴⁶ Of the five strategies for avoiding systematic causal overdetermination outlined in Chapter 1, annihilationist hyloenergeism might be construed as a version of the second strategy, in that it denies that a composite material substance has, as its proper parts, the material substances that gave rise to it.

give rise), then they no longer do so as substances. If we also stipulate that only substances can be causal agents,⁵⁴⁷ then, even if those material objects did possess certain causal powers before being so joined, there is no time at which those material objects and the numerically distinct composite whole to which they give rise can both be said to cause some effect. Thus, on an alterationist version of hyloenergeism, there is, once again, no systematic causal overdetermination for material substances.⁵⁴⁸

Hyloenergeism's commitment to the singularity and essentiality of substantial activity can be seen, then, to support either an annihilationist or an alterationist diachronic theory of composition. And, as I have also shown, each of these alternative diachronic theories of composition can be seen to provide a solution to the problem of systematic causal overdetermination. But how much work is hyloenergeism's alternative conception of substantial form doing here? Could not anyhylomorphist make use of similar principles to avoid systematic causal overdetermination?⁵⁴⁹ In Chapter 1, I argued that Neo-Aristotelian structuralhylomorphism's conception of substantial form as a polyadic relation or structure commits it to a preservationist diachronic theory of composition. But later on in Chapter 1 I also argued that Stump's commitment to the unicity and immediacy of substantial form allows her to pursue various alterationist and annihilationist strategies, in spite of her structuralist conception of substantial form as configuration. What, then, does hyloenergeism do that Stump's account cannot?

⁵⁴⁷ See sections 2.2.2 and 2.4.2 above for my use of this claim as a way of avoiding the Priority Objection to Brower's model of Aquinas's ontology. See section 2.4.1 for a list of texts that seem to suggest that Aquinas himself held such a claim.

⁵⁴⁸ Of the five strategies for avoiding systematic causal overdetermination outlined in Chapter 1, alterationist hyloenergeism might be construed as a version of the fourth strategy, in that it denies that the material parts of a composite material substance ever, strictly speaking, cause any of the composite's effects.

⁵⁴⁹ Indeed, in his "Emergent Substance", Patrick Toner argues that the doctrine of non-substantial parts can be used by just about any theory of material objects as a way of avoiding systematic causal overdetermination. My own approach to these issues is greatly indebted to the solution that Toner gives in that article.

In my view, the principal advantage of hyloenergeism's alternative conception of substantial form is that it explains *why* those pre-existing material substances would become significantly altered or cease to exist when they give rise to a numerically distinct composite whole. For, according to hyloenergeism, the substantial activity of a material substance is a certain activity or process that its matter is undergoing. And this activity or process is such that no material object that participates in it can cease to participate in it without thereby ceasing to exist. According to hyloenergeism, then, to introduce a new substantial activity in some matter is to introduce, in that matter, a new material substance. And so, by virtue of coming to participate in a new substantial activity, a material substance must cease to exist, or at least cease to be the material substance that it was, and be replaced by a new material substance whose identity is essentially grounded in that new substantial activity. Likewise, when two or more material substances come to jointly participate in some new substantial activity, all of those material substances must cease to exist, or at least cease to be the material substances that they were, and be replaced by a new, composite material substance whose identity is essentially grounded in that new substantial activity. On a hyloenergeic worldview, to change what a material substance principally *does*, to change the principal occurrence that is taking place in its matter, is to change what that material substance principally *is*. And so, if what it takes to bring a numerically distinct composite whole into existence is for a number of material substances to jointly participate in a new substantial activity, a new substantial process, then it follows from the basic claims of hyloenergeism that those substances must cease to exist, or at least cease to be what they were, upon the whole's creation. As a result, it can be argued that it is hyloenergeism's conception of substantial form as substantial activity that allows it to accommodate an alterationist or annihilationist diachronic theory of composition. It is not, then, a mere accident or a mere

stipulation that hyloenergeism is able to successfully avoid systematic causal overdetermination. It has the resources for avoiding that objection built into its core claims.⁵⁵⁰

4.3.2.2 Reducibility and Redundancy

In Chapter 1, I argued that, due to its relatively thin conception of substantial form as a polyadic relation or structure, Neo-Aristotelian structural hylomorphism risks collapsing into some other already well-entrenched metaphysical view. I argued that if a polyadic relation or structure is nothing more than the spatial and causal relations that hold between a composite whole's material constituents, and these relations are, as Johnston and Koslicki suggest, universals rather than particulars, then perhaps Neo-Aristotelian structural hylomorphism is just an elaboration and defense of David Armstrong's account of structural properties or structural universals. On the other hand, if the relevant spatial and causal relations are, as Fine and Jaworski suggest, trope-like particulars, then perhaps Neo-Aristotelian structural hylomorphism is just a more sophisticated version of the bundle theory of material objects. In order to preserve the uniqueness of a hylomorphic account of material objects and avoid the result that hylomorphism only reinforces other contemporary views, Neo-Aristotelian structural hylomorphists need a way of resisting the reducibility of their polyadic relations or structures to the various spatial and causal relations that hold between a composite whole's material constituents. But it is hard to see how a polyadic relation or structure could be anything other

⁵⁵⁰ It should be noted, however, that a proponent of hyloenergeism cannot use either of the strategies presented here to avoid systematic causal overdetermination for composite material *artifacts*, since the principal formal components of those types of entities are not substantial activities. I think that a proponent of hyloenergeism should say that composite material artifacts, since they are not composite material *substances*, are not causal agents, and so, strictly speaking, cannot be said to perform any of the actions that are performed by the material substances of which they are composed. Of the five strategies for avoiding systematic causal overdetermination outlined in Chapter 1, then, hyloenergeism's approach to composite artifacts might be construed as a version of the third strategy. In Chapter 1 I argued that this sort of reply is problematic for Neo-Aristotelian structural hylomorphism because it would mean that *no* composite material object could ever be said to act. But for hyloenergeism, it would only mean that *certain* composite material objects can never be said to act. Composite material substances, which include many of the composite material objects with which we are familiar, would still be able to act for the reasons given here. Whether it is the whole that acts or the parts, then, depends crucially on which kind of composite material object we are considering.

than a set of spatial and causal relations. Indeed, as we have seen, Neo-Aristotelian structural hylomorphists themselves tend to describe their unifying relations or structures in spatial and causal terms. It looks unlikely, then, that they will be able to pursue such a strategy.

I think that hyloenergeism has the resources to avoid this sort of objection to structural hylomorphism as well. In what follows, I will argue that hyloenergeism's radically different approach to substantial form allows it resist the ontological reduction of substantial form to the spatial and causal relations that hold between a composite material substance's material constituents. And this, in turn, allows hyloenergeism to preserve the uniqueness of a hylomorphic account of material objects.

Hyloenergeism is a version of non-structural hylomorphism. To say of some version of hylomorphism that it is a version of non-structural hylomorphism is to say that it rejects a structuralist conception of substantial form. According to hyloenergeism, then, the substantial form of a material substance is not to be identified with, or reduced to, any kind of relation, structure, organization, arrangement, or configuration of its material constituents. It is also not to be identified with, or reduced to, any kind of power, capacity, or property possessed by its material aspect. The substantial form of a material substance, its principal formal component, is the substantial activity or process that its material aspect is undergoing. And, on the present account, a substantial activity or process is not, in any way, reducible to the material objects that participate in it or to those material objects, their properties, and the relations that hold between them. A substantial activity is a species of occurrence, and so is of a fundamentally different category from these other sorts of entities. According to hyloenergeism, then, a substantial form is not reducible to the spatial and causal relations that hold between a composite material

substance's material constituents precisely because it is not identified with, or reducible to, any of the structural features of a composite material substance.

What is the relationship between a substantial activity and the structural features of a composite material object, then? Here I think the hyloenergeist has three options. First, she could say that the structural features exhibited by the material constituents of a composite material substance are *parts* of its substantial activity. This is not to say that those structural features are the only parts that a substantial activity has. A substantial activity might also have various non-structural properties or sub-activities as parts. This is also not to say that any of those structural features are *essential* parts of a substantial activity. A substantial activity might be such that it can admit of various changes in its structural and non-structural parts. To say that a substantial activity has various structural features as parts also does not entail that it depends upon those features for its existence and identity. The relevant structural features might rather depend on the whole that they compose.⁵⁵¹

Alternatively, a hyloenergeist could say that a substantial activity neither composes nor is composed of any of the structural features exhibited by the material constituents of a composite material substance, but rather that those structural features “flow” from a substantial activity. On this view, a composite material substance has the structural features that it does *because* it possesses a certain kind of substantial activity. The substantial activity itself is of a distinct ontological category, but it is also ontologically prior to members of other ontological categories, such as the structural features of a composite material substance that fall under various categories of accidents. On this view, the existence and identity of such entities depend on the existence and identity of their substantial activity.

⁵⁵¹ In Chapter 1, I considered a similar suggestion for how to understand the relationship between the structure of an object and the particular spatial and causal relations that hold between its parts. See section 1.3.2 for more on this.

Finally, a hyloenergeist could say that a substantial activity is entirely distinct from the structural features exhibited by the material constituents of a composite material substance. On this view, a substantial activity would neither compose, nor be composed of, any of those structural features. A substantial activity would also neither be ontologically prior, nor ontologically posterior, to any of those structural features. On this view, a substantial activity would sit “side by side”, as it were, with the relations or structures that hold of a composite’s material constituents.

I myself think that the right account should include both the second and the third suggestions. Some of the structural features of a composite material substance should be seen as “flowing” from its substantial activity, but perhaps not all. There may be some structural features that sit “side by side” with it. The particular size and shape of a composite material substance, for example, are not obviously entailed by the presence of some particular substantial activity in its matter (though perhaps in some cases they would be) and so these structural features (if they can be considered structural features) would not be so related to it. I think that this sort of account best preserves the centrality of substantial activity in a hyloenergeic ontology. It also preserves its uniqueness and its simplicity (of which I will say more in the next section).

It should be pointed out, however, that a proponent of hyloenergeism could commit to any of these three views concerning the relationship between the structural features of a composite material substance and its substantial activity and still offer a response to the reducibility objection. On the second and third views it is clear that the substantial activity of a composite material substance cannot be reduced to the causal and spatial relations that hold between a composite material substance’s material constituents because it is of a distinct ontological category and is also in no way composed of such entities. Even on the first view, the

substantial activity of a material substance is a numerically distinct composite whole, which cannot be reduced to any one of, or any set of, the composite whole's structural features (either because it has more than just structural parts or because it is such that can admit of various changes in such parts).

Hyloenergeism resists the reducibility of a substantial form to the various spatial and causal relations that hold between the material constituents of a composite material substance, then, by taking substantial form to be a member of some non-structural ontological category. And, in so doing, it also preserves the uniqueness of a hylomorphic account of material objects. Neither Armstrong nor any bundle theorist considers activities or processes to be included among the proper parts of composite material objects. As a result, hyloenergeism does not collapse into either of these already well-entrenched metaphysical views. As we saw in section 4.2 above, there are several contemporary approaches to material objects that are built on a notion of activity or process, but very few of these are willing to consider the activities or processes in which a material object is engaged to be among its proper parts. And even fewer posit the existence of a single essential process or activity. Telic hyloenergeism, with its irreducibly teleological account of material substances, sets hyloenergeism apart from other contemporary views even more. According to telic hyloenergeism, material substances are essentially ordered toward particular ends. And that is a claim seldom defended in contemporary metaphysics.⁵⁵² Whether hyloenergeism, in its telic or atelic form, is the *right* account of material objects is, of course, the current subject of debate. But this much we can be sure about: hyloenergeism does not simply reinforce other contemporary views. It is something altogether new.

⁵⁵² See, however, the sources cited in footnote 70 above.

4.3.2.3 Fragility and Persistence

As my third main objection to Neo-Aristotelian structural hylomorphism, I argued that, due to its emphasis on the mostly static structural features of composite material objects, Neo-Aristotelian structural hylomorphism is unable to provide a formal explanation for the identity over time of those objects that exhibit a greater degree of dynamic complexity, such as living organisms. In the case of my cat, Nico, for example, it is not clear that any particular structural feature has remained over the entirety of his life. And since accounting for the identity over time of such objects is typically taken to be one of the major explanatory roles of substantial form, in failing to provide such an account, Neo-Aristotelian structural hylomorphism fails to preserve one of the principal explanatory virtues of hylomorphism.

It is my contention that hyloenergeism's radically different approach to substantial form allows it to solve this problem for structural hylomorphism as well. In what follows, I will argue that hyloenergeism's radically different approach to substantial form allows it to preserve the numerical identity of a composite material substance through various changes in not only its material constituents but also its structural features. And this, in turn, allows it to account for the identity over time of more dynamically complex material objects, such as living organisms.

As we saw in Chapter 3, in Aquinas's ontology, substantial form serves as the ultimate ground and explanation for the identity of an individual material substance over time. In other words, an individual material substance is the very same individual material substance at different times, and through various sorts of changes in its material parts and properties, because it possesses the very same substantial form throughout. Now, according to hyloenergeism, the substantial form of a material substance is the substantial activity or process that its matter is undergoing. And so, according to the proposed account, an individual material substance is the

very same individual material substance at different times, and through various sorts of changes in its material parts and properties, because it possesses the very same substantial activity throughout.

According to the conception of substantial activity outlined in sections 4.3 and 4.4.2 above, the substantial activity of a material substance is not in any way identical to, composed of, or essentially dependent upon any particular material constituents that the material substance possesses at any time. As a result, a substantial activity can admit of various changes in the material objects that participate in it. Intuitively, activities and processes do seem to have this sort of flexibility. The flowing of a river, for example, can involve millions of water molecules over even a short period of time. And the singing of a choir can incorporate different singers at different times. Indeed, one of the principal insights with which section 4.2 above was begun was the thought that certain processes or “disturbances” seem to be able to “migrate through” various entities over time. A conception of substantial form according to which the substantial form of a material substance is an activity or process, then, can straightforwardly accommodate material change.

On the present account, the substantial activity of a material substance is also not in any way identical to, composed of, or essentially dependent upon any particular structural features that are realized in the material constituents that the material substance possesses at any time. As a result, a substantial activity can also admit of various changes in the spatial and causal relations that hold between those objects. Intuitively, activities and processes do seem to have this sort of flexibility. When a group of people are dancing, for example, that dancing will involve various arrangements and configurations of the dancers over time. And the very same process of burning that a building undergoes when it catches fire may carry on through the building’s collapse.

Indeed, many activities or processes with which we are familiar seem to *require* that the participants undergo various changes in their relational and structural features. Two teams cannot be playing baseball, for example, unless they are alternating sides at least every inning. I submit, then, that a conception of substantial form according to which the substantial form of a material substance is an activity or process can accommodate structural change as well.

Substantial activities, then, can admit of various changes in the material objects that participate in them, and in the spatial and causal relations that hold between those objects. And so the fact that certain material substances, such as living organisms, exhibit a great degree of variation in their material constituents and their structural features over time is no threat to the identity of such substances on a hyloenergeic account. Indeed, since, on the proposed account, that which makes a material substance the same over time is itself an inherently dynamic entity – in most cases a certain kind of *changing* that is taking place in its matter- we should *expect* that material substances would be undergoing various sorts of changes throughout their careers. Hyloenergeism, then, seems to offer a more plausible account of the identity over time of time of composite material substances.

But what about the substantial activity itself? Does the substantial activity of a material substance itself change over time? Toward the end of section 4.1 above, we saw that both Steward and Stout, two contemporary philosophers who have done the most work to advance the alternative approach to understanding the nature of processes on which my own conception of substantial processes is based, hold that processes do change their properties over time. Indeed, the fact that processes seem to be able to change their properties over time is one of the main reasons that Steward and Stout give for thinking that they really are ontologically distinct from events. But if substantial activities themselves change over time, is there a worry here that

providing an account of the identity over time of material substances in terms of substantial activities just pushes the problem back a step? It may be recalled that I raised a similar objection to Neo-Aristotelian structural hylomorphism's account of the identity over time of material substances in terms of structure. If the structure of a composite material object itself changes over time (which appears to be the case in complex material objects like living organisms), then in what sense is it the same structure at different times?

Here I think a proponent of hyloenergeism has two options. First, he or she could admit that substantial activities themselves do change, but offer an account of their identity conditions such that the substantial activity of a material substance can remain numerically identical over time through various changes in a material substance's material parts and structural features. If such an account could be given, then hyloenergeism may still have the advantage over structural hylomorphism with respect to identity over time. For, as I pointed out in Chapter 1, if a structure is such that it can admit of variations in the spatial and causal relations that hold between the items that are structured, then it is no longer clear just what the identity conditions of structures are. But the identity conditions of activities or processes do not seem so closely tied to the spatial and causal relations that hold between their participants, as the examples above attest.

What, then, might a proponent of hyloenergeism say about the identity conditions of substantial activities? On a telic version of hyloenergeism, substantial activities of different kinds are distinguished from one another by the differing ends to which they are ordered. And substantial activities of the same kind are distinguished from one another by their differing spatio-temporal locations. A proponent of telic hyloenergeism might say, then, that, despite various other sorts of changes, the substantial activity of a material substance remains the same substantial activity as long as (1) it continues to be ordered to the same end, and (2) it remains

spatio-temporally continuous with its previous iterations. I am unsure whether this analysis provides adequately necessary and sufficient conditions for the identity of a substantial activity over time (I suspect that there will be counterexamples), but it does appear to offer a more fully developed, and importantly, more flexible, account than that offered by structural hylomorphism.

Alternatively, a proponent of hyloenergeism could simply deny that the substantial activity of a material substance ever changes. In Chapter 3 we saw that, for Aquinas, substantial form is able to serve as the ultimate ground and explanation of the identity of a material substance over time through various sorts of changes in the material substance's material parts and its accidental properties because it is itself immutable, indivisible, and simple. A substantial form retains its own identity over time by virtue of the fact that it does not change. It remains wholly identical by virtue of the fact that it has no parts to lose or gain. Hyloenergeism may be able to tell a similar story. According to the conception of substantial activity outlined above, the substantial activity of a material substance is not in any way identical to, composed of, or essentially dependent upon any particular material constituents that the material substance possesses at any time or any particular structural features that are realized in those material constituents. And, in section 4.3, it was explained that the substantial activity of a material substance is both spatially and temporally maximally homogeneous. One consequence of these claims is that a substantial activity appears not to have any *parts* whatsoever. Once we consider the fact that a substantial activity has no material, structural, spatial or temporal parts, it seems that there is nothing else of which it could be composed.⁵⁵³

⁵⁵³ Is not the substantial activity of a complex material object, such as a living organism, composed of various sub-activities that serve various minor functions? With respect to the relationship between a substantial activity and its various sub-activities, I think that a proponent of hyloenergeism has the same three options that he or she had with respect to the relationship between a substantial activity and the structural features of a composite material substance's material constituents. On the first option, a substantial activity will be composed of its various sub-activities, and so will not be absolutely simple. On the second option, a substantial activity will not be composed of its various sub-activities but those sub-activities will "flow" from it, similar to the way in which the powers of the

The relevance of this conclusion for the identity of over time of a material substance is this: if the substantial activity of a material substance is, in fact, mereologically simple, then it cannot be said to undergo any changes in its parts over time. Nor can a substantial activity be said to undergo any changes in its properties. For a substantial activity to undergo any amount of intrinsic change would be for that substantial activity to cease to exist and for it to be replaced by a substantial activity of another species. In this way, it might be argued that substantial activities, for however long they endure through time, are always constant and uniform, never undergoing any changes in their parts or in their intrinsic natures. On this view, all of the changes that a material substance can be said to undergo over time (perhaps even by virtue of its participation in a particular substantial activity) are changes on the side of its matter. The matter can come to more perfectly realize or more ably perform the substantial activity in which it participates, but the substantial activity itself remains exactly the same.⁵⁵⁴ The substantial activity of a material substance would, on this view, be a sort of steady, stable, unwavering and unrelenting occurrence that carries on continuously through its matter for the duration of the material substance's existence. On a telic understanding of hyloenergeism, this steady and stable, unwavering and unrelenting occurrence would be the regular and consistent striving of its matter toward the end that constitutes the flourishing of the material substance of which it is a part. In either case, according to hyloenergeism, as long as the matter of a material substance continues to participate in that very same steady and stable, unwavering and unrelenting occurrence, as long as it continues to participate in the same occurrence that is its substantial activity, then the numerical

soul flow from its "essence". On the third option, a substantial activity will not be composed of its various sub-activities, nor will it be ontologically prior or posterior to it. It is not clear, however, what would motivate the third option.

⁵⁵⁴ It is worth noting that Aquinas himself describes the gradual possession of a substantial form by its matter in precisely this way, so as to account for the growth and development of a material substance without compromising the simplicity of substantial form. See, for example: Aquinas, *QDPD*, Q. 3, A. 9, Ad. 9; Aquinas, *In Met.*, B. 8, L. 3, 1727; Aquinas, *SCG*, II, C. 19, N. 5.

identity of the material substance is itself retained, through whatever other changes that substance may undergo.

4.4 Concluding Remarks: Thomistic Hyloenergeism?

The goal of this chapter, and, indeed, the goal of this dissertation, has been to motivate and to begin to develop a new version of hylomorphism, called hyloenergeism, according to which the substantial form of a material substance is more like an activity or process than a relation or structure. In section 4.1, I gave an overview of various contemporary analytic approaches to understanding the nature of occurrences, emphasizing in particular two leading accounts of processes. In section 4.2, I outlined the main features of four recent occurrence-based theories of material objects within which notions of activity or process play a key role. In section 4.3, I then brought together elements from structural hylomorphism, Brower's hylomorphism, Aquinas's hylomorphism, the alternative approach to understanding the nature of processes introduced earlier, and the occurrence-based theories of material objects outlined in the preceeding section to construct a hyloenergeic ontology of material objects, one in which the substantial form of a material substance is a certain substantial activity or substantial process that is occurring in its matter. In section 4.4, I presented what I take to be the main theoretical and explanatory virtues of hyloenergeism. I argued that hyloenergeism has the resources to not only preserve all of the main theoretical and explanatory virtues of structural hylomorphism, but also, due to its radically different approach to substantial form, to avoid the three main objections that I raised for structuralist conceptions of form in Chapter 1.

As I see it, the upshot of this dissertation is not so much a fully developed view, but a foundation for a promising research program. Much more work will need to be done before hyloenergeism can be considered a real contender in contemporary debates. More work will need

to be done, for example, to establish the priority of activity, to make plausible the claim that certain kinds of occurrences are at least as fundamental as, and perhaps even more fundamental than, certain kinds of objects. More work will also need to be done concerning the relationship between activities or processes and the properties and relations of their participants, so as to ward off worries about the ontological reduction of the category of occurrence to these more “basic” categories. And much more will need to be said about whether and how activities or processes might endure through time without having temporal parts. The project that I have proposed in this dissertation, then, the project of hyloenergeism, is still, in many ways, unfinished. But what I hope to have shown in these four chapters is that it is a project worth pursuing. I hope to have shown that a hyloenergeic account of material objects is an account worth developing.

One final question that I have left unanswered in this dissertation is whether, and to what extent, the theory of material objects proposed in section 4.3 above, the view that I have called hyloenergeism, can also be attributed to Aquinas. In articulating my own position in this chapter I have made frequent use of various claims that Aquinas (and also, in some cases, Aristotle) makes about the nature and role of substantial form. And so, in this way, it is at least *Thomistic* (and broadly Aristotelian). But can it also be said that Aquinas himself espouses a hyloenergeic conception of substantial form?

If a hyloenergeic interpretation of Aquinas is to be made plausible, there are at least three things in Aquinas’s ontology from which substantial activity must be distinguished. First, since Aquinas holds that substantial form falls under the category of substance, substantial activity must, in some way, be distinguished from any and every species of accident, including accidents that fall under the category of action.⁵⁵⁵ Second, since Aquinas also holds that substantial form is

⁵⁵⁵ The concern here is twofold. First, Aquinas holds that the metabolic activities in which a living material substance’s material parts are engaged are *accidents* of the larger substance - one falling under the category of action

the formal constituent of a material substance's essence, substantial activity must, in some way, be distinguished from a material substance's *esse*, i.e., its "act of existence".⁵⁵⁶ Third, since, in Aquinas's ontology, substantial form is a "perfect" or "complete" act, substantial activity must, in some way, be distinguished from any and every species of generation, corruption, and motion, which are "imperfect" or "incomplete" acts.⁵⁵⁷ What a proponent of a hyloenergeic interpretation of Aquinas would need to show is that substantial activity is a unique species of occurrence, one that is distinct from all of the other dynamic categories in Aquinas's ontology. Now, I think that there are plausible distinctions to be made between the aforementioned dynamic categories of being and the sorts of entities that I have called substantial activities, but, unfortunately, I will have to leave that discussion for another day.⁵⁵⁸

(see, for example: Aquinas, *In DA*, B. 2, L. 9; Aquinas, *QDA*, Q. 13, Co.; Aquinas, *ST*, I, Q. 76, A. 1, Co.). And so, since substantial form falls under the category of substance, it cannot be identified with any one of, or any set of, these activities, strictly speaking. Second, more generally, the term 'activity' is typically used to translate Aquinas's 'operatio' (which in turn is typically used to translate Aristotle's 'energeia'), and an operatio or energeia is, as Aristotle explains in various places (see, for example, Aristotle, *Nicomachean Ethics*, B. 10, Ch. 4; Aristotle, *Metaphysics*, B. 9, Ch. 6), a particular species of action. Since substantial form falls under the category of substance, then, even if a substantial form can be shown to share certain features with an operatio or energeia, it cannot be identified with an *operatio* or *energeia*, strictly speaking (though it is worth pointing out that Aristotle himself refers to the soul as an *energeia* in the *De anima*, B. 3, Ch. 4 (see: Aristotle, J. A. Smith (trans.), *On the Soul*, in Jonathan Barnes (ed.), *The Complete Works of Aristotle*, Vol. 1 (Princeton, NJ: Princeton University Press, 1984): B. 3, Ch. 4) and the *Metaphysics*, B. 9, Ch. 3).

⁵⁵⁶ The concern here is that, in various places, Aquinas identifies the life of an organism (its *vivere*) with its act of existence (its *esse*) (see, for example: Aquinas, *ST*, I-II, Q. 56, A. 1, Ad. 1; Aquinas, *SCG*, I, C. 98, N. 2; Aquinas, *QDV*, Q. 13, A. 4, Ad. 2). And so, since substantial form falls under the category of substance, it cannot be identified with an organism's life, strictly speaking. For this reason (and for other reasons), W. Norris Clarke, one of the few Thomists of the past century to try to reconcile Aquinas's texts with elements of process philosophy, locates the irreducibly dynamic character of material substances in their *esse*, not their substantial form (see, for example, his *The One and the Many: A Contemporary Thomistic Metaphysics* (Notre Dame, IN: University of Notre Dame Press, 2001)).

⁵⁵⁷ The concern here is that, for Aquinas, the categories of motion, generation, and corruption are meant to capture all of the various changes that a material substance or its matter can be said to undergo (see, for example, Aquinas, *In Phy.*, B. 3, L. 1-5; B. 5, L. 1-4). And so if a substantial activity is, or manifests itself in, a changing in its subject, then it would seem to fall under the category of motion, generation, or corruption, not the category of substance.

⁵⁵⁸ Here is a rough sketch of how I think these distinctions will play out. A substantial activity is distinct from any accident, even an accident falling under the category of action, in at least two ways. First, a substantial activity, unlike an action, is not the result of its subject's agency, but rather, the possession of a substantial activity is a necessary precursor to agency. A substantial activity is constitutive of its possessor's agency. Second, a substantial activity, unlike an action or operation, is not an occurrence that a material substance, or any of its material parts, can cease to participate in without ceasing to exist. A substantial activity is essential to that of which it is the substantial activity. A substantial activity is also distinct from a material substance's *esse* or act of existence in at least two ways. First, a substantial activity, unlike a material substance's *esse* or act of existence, does not entail the existence

I will say, in closing, however, that I think that a conception of substantial form as substantial activity does help us to understand why Aquinas would say some of the things that he does about substantial form. For example, as I argued above, a conception of substantial form as substantial activity explains why Aquinas would think that material substances cease to exist, or at least cease to be what they were, upon giving rise to, or upon coming to be a part of, some other composite substance. It also explains why Aquinas and Aristotle would take living organisms to be the paradigmatic examples of material substances, and why they would consider the death of a living organism to be a substantial change. Theologically, a conception of substantial form as substantial activity might also give us a better understanding of the nature of immaterial substances. For, arguably, it makes more sense to speak of a matterless activity than it does a matterless structure. And, in general, an ontology in which activity is central invites a much more active conception of God. For if God is, in some sense, pure form or pure act, and form is understood as activity, then Aquinas's God is a God of pure and unlimited activity. On such a view, Aquinas's God would turn out to be not just a God who does things, but a God who is the most *doing* thing there is. For these reasons, I think that hyloenergeism offers not only an independently plausible theory of material objects, but also, for those who are interested in

of the material substance of which it is a part. There are merely possible substantial activities, and to those something else must be added in order to introduce an actually existing thing (for Aquinas's characterization of *esse* as that which is added to a merely possible essence in order to introduce an actually existing thing, see, for example: Aquinas, *DEE*, Ch. 4). Second, a substantial activity, unlike a material substance's *esse* or act of existence, is kind-specific. Whereas the *esse* or act of existence of a material substance of a certain kind is merely numerically distinct from the *esse* or act of existence of a material substance of another kind (see, for example: Aquinas, *SCG*, II, Ch. 52, N. 2), the substantial activities of any two such substances will also be qualitatively distinct. Finally, a substantial activity is also distinct from any species of motion, generation or corruption in at least two ways. First, a substantial activity, unlike a motion, generation, or corruption, is complete at every moment of its existence and is not composed of qualitatively distinct temporal parts. In this way, a substantial activity is more like an *energeia* than it is a motion, generation, or corruption (for Aquinas's take on Aristotle's *kinesis/energeia* distinction, see, once again: Aquinas, *In NE*, B. 9, Ch. 10). Second, a substantial activity, though it is, like a motion, generation, or corruption, directed toward a particular end, it does not, like those sorts of occurrences, necessarily cease upon the realization of its end. There are, then, various ways in which a substantial activity might be distinguished from the other dynamic categories in Aquinas's ontology. Naturally, the distinctions given here are, at this stage, rather schematic. But I plan to develop a more detailed taxonomy of the various dynamic categories of being in Aquinas's ontology in future work.

Aquinas, a new and exciting way of reading the works of the Angelic Doctor. And that, it seems to me, makes it a view worth taking seriously.

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