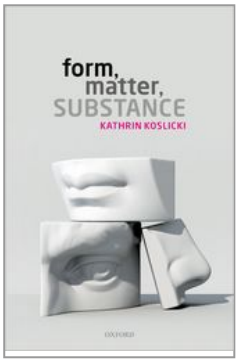

Form, Matter, Substance
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Concrete Particular Objects

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Abstract and Keywords

This chapter reviews existing approaches to the metaphysics of concrete particular objects and positions the doctrine of hylomorphism with respect to competing accounts. The literature is divided over whether concrete particular objects are or are not further analyzable into constituents which do not themselves belong to the ontological category of concrete particular objects and in terms of which the character of these latter entities is to be explained. This chapter briefly surveys constituent ontologies (e.g., bundle theories or substratum theories) as well as non-constituent ontologies (e.g., Platonism or austere nominalism) and discusses prominent objections that have been raised against these accounts. These considerations in turn give rise to a set of desiderata and decision points which guide the development of a hylomorphic analysis of concrete particular objects in subsequent chapters.

Keywords: concrete particular objects, hylomorphism, constituent ontology, relational ontology, bundle theory, substratum theory, Platonism, nominalism

1.1 Introductory Remarks

Extant approaches to concrete particular objects in the literature are divided over whether these entities are or are not analyzable into further constituents which belong to an ontological category distinct from that of concrete particular objects and in terms of which the character of concrete particular objects is to be explained. (I use the phrase “character” here in a deliberately open-ended manner, to leave room for a variety of explanatory tasks which arise in connection with the metaphysics of concrete particular objects, such as those identified in the remainder of the chapter.) A *constituent ontology* (e.g., bundle

theory or substratum theory), on the one hand, ascribes such a constituent structure to concrete particular objects; a *non-constituent ontology* (e.g., Platonism or austere nominalism), on the other hand, denies that concrete particular objects have constituents which are not themselves concrete particular objects and hence does not attempt to explain the character of concrete particular objects by appeal to such a constituent structure.[1] The doctrine of *hylomorphism*, in its application to the specific case of concrete particular objects, can be interpreted as yielding a certain type of constituent ontology. On this reading, a concrete particular object is taken to be analyzable into further constituents, viz., matter (*hulē*) and form (*morphē* or *eidos*), at least one of which belongs to a distinct ontological category and in terms of which the object's character is to be explained. Although I myself find attractive this construal of hylomorphism as giving rise to a certain type of constituent ontology, it will emerge that other hylomorphists prefer a different reading.

1.2 Constituent vs. Non-Constituent Ontologies

It is compatible with a non-constituent ontology that it nevertheless ascribes to concrete particular objects a mereological constituent structure. To illustrate, consider the **(p.12)** ontology Aristotle defends in the *Categories*. Relative to this ontology, concrete particular objects (e.g., individual living organisms), which are classified there as primary substances, may have *proper parts* which are themselves classified as primary substances (e.g., Socrates and Socrates' arm).[2] The mereological complexity Aristotle attributes to these entities does not yield an analysis of Socrates into constituents which belong to a distinct ontological category and in terms of which Socrates' character is to be explained, since both Socrates and his proper parts are assigned the *same* status within the ontology of the *Categories*, namely, that of primary substances.

The *Categories* is generally taken to be one of the earliest, if not *the* earliest, of Aristotle's written works. In contrast, when we turn to such texts as the *Physics, De Anima*, and the *Metaphysics*, we notice that Aristotle's views concerning the metaphysical complexity of such entities as individual living organisms have undergone a definitive shift. For a variety of reasons, Aristotle comes to believe that those concrete particular objects which were previously his ontological front runners in the *Categories* require further analysis into additional constituents, viz., their matter and their form, in terms of which the character of concrete particular objects is to be explained. Aristotle's hylomorphic analysis of concrete particular objects as compounds of matter and form will be considered in more detail in subsequent chapters. The important point for present purposes is only that, while the *Categories* ontology does not ascribe to such entities as individual living organisms the type of structure characteristic of a constituent ontology, it does allow that these entities have proper parts which are assigned to the same ontological category as the wholes to which they belong. Thus, relative to the distinction drawn above, Aristotle's approach in the *Categories* can be classified as a *non-constituent* ontology, while the hylomorphic analysis of

concrete particular objects he defends in later texts can be classified as a *constituent* ontology, assuming that either matter or form (or both) are treated as constituents belonging to a distinct ontological category and as explanatory of the matter–form compound's character.

1.3 Non-Constituent Ontologies: Platonism and Austere Nominalism

Given our terminology, then, a non-constituent ontology is one which treats concrete particular objects, so to speak, as "blobs," i.e., as metaphysically unstructured, while allowing that these blob-like entities may nevertheless have proper parts that are **(p.13)** themselves concrete particular objects. Non-constituent ontologies come in different varieties, e.g., Platonism (also sometimes classified as a type of *relational ontology*) and austere nominalism.[3] Both of these theories are primarily put forward as responses to the so-called *Problem of Universals*.[4] The Problem of Universals, which has occupied philosophers at least since the time of Plato, arises when we ask what (if anything) many concrete particular objects which *resemble* each other in certain objective respects have *in common*. For example, since fire trucks, tomatoes, and sunsets are all objectively similar to one another by being red, one might think that there is some entity, viz., redness, to which these concrete particular objects are all related in some way and by appeal to which their red character is to be explained.

According to the *Platonist*, the property or characteristic of redness that is apparently shared by all and only those concrete particular objects that are red should be understood as a mind-independent *universal* that is "transcendent," i.e., immaterial and abstract and therefore not located in space and time. (The Platonist conception of universals contrasts with another form of realism known as *Aristotelianism*, according to which universals are "immanent," i.e., spatiotemporally located and in some sense present in the objects that exemplify them.) For the Platonist, objectively similar concrete particular objects all stand in some relation (e.g., participation, exemplification, or instantiation) to the corresponding universal.[5] In contrast, the austere nominalist (e.g., Quine (1960)) maintains that there is no need to posit properties as separate entities in order to capture the ways in which concrete particular objects objectively resemble one another. Rather, for the austere nominalist, everything that exists is itself a concrete particular object and the objective similarities which obtain between concrete particular objects are not taken to be subject to further explanation at all.

1.4 Constituent Ontologies: Bundle Theories and Substratum Theories

A constituent ontology allows that concrete particular objects may be complex in two ways: firstly, by possibly having proper parts that are assigned to the same ontological category as the concrete particular object whose parts they are; and, secondly, by consisting of constituents which belong to a distinct ontological category and in terms of which the character of a concrete particular object is to

be explained. Constituent ontologies traditionally come in two main flavors: *bundle theories* **(p.14)** and *substratum theories*.[6] Both of these varieties of constituent ontologies can themselves be further subdivided into more specific types.

Bundle theorists hold that concrete particular objects *are* (numerically identical to) bundles of properties. But bundle theorists differ over how they approach properties, i.e., over which response to the Problem of Universals they favor. *Universalist* bundle theorists take the properties or characteristics that are shared by objectively similar concrete particular objects to be universals.[7] In contrast, *trope-theoretic* bundle theorists hold that the properties or characteristics that are shared by objectively similar concrete particular objects are themselves particulars, viz., so-called *tropes, moments,* or *modes*.[8] Tropes are construed by their proponents as particularized properties or individual qualities, e.g., the particular redness that inheres in a rose.[9] Both types of bundle theorists view concrete particular objects as in some sense composed of, or constituted by, the properties that enter into a particular bundle; only they differ over whether the very same properties can be multiply located in distinct bundles at a single time.

For substratum theories, concrete particular objects are not exhausted by the properties they exemplify; rather, in addition, each concrete particular object is also associated with a substratum, i.e., an entity of a certain type in which the properties exemplified by the concrete particular object in question inhere. The substratum underlying the properties possessed by a concrete particular object is often taken to be a type of *bare particular*, an entity whose identity is not in any way tied up with the properties exemplified by the concrete particular object with which it is associated.[10] But not all bare particularists conceive of the substratum and its relation to the concrete particular object with which it is associated in the same way. According to one version of bare particularism (*thin particularism*), concrete particular objects are identified with the bare particulars with which they are associated.[11] A different version of **(p.15)** bare particularism (*thick particularism* or *factualism*) identifies concrete particular objects with complexes of some sort (e.g., facts or states of affairs) which include among their constituents entities that are not themselves concrete particular objects. For example, David Armstrong’s specific version of this type of approach takes those concrete particular objects which we encounter in ordinary experience to be states of affairs and makes room for *thin particulars* only insofar as these can be “abstracted” from the thick particulars with which they are associated. Nevertheless, the concrete particular objects we encounter in ordinary experience (i.e., thick particulars or states of affairs), in Armstrong’s view, are metaphysically structured in that they consist of non-mereological constituents, viz., thin particulars and properties, the latter of which Armstrong takes to be Aristotelian universals.[12,13]

1.5 Difficulties for Non-Hylomorphic Competitors

In this section, I briefly survey some well-known difficulties which arise for the non-hylomorphic approaches to the metaphysics of concrete particular objects we have reviewed so far.[14] By considering prominent objections which have been raised against these competing accounts, we also begin to develop a sense of what explanatory goals a hylomorphic analysis of concrete particular objects ideally should meet and what pitfalls it should, if at all possible, avoid.

Difficulties for Non-Constituent Ontologies: Property Possession, Objective Similarity, and Change. Non-constituent ontologists deny that concrete particular objects are further analyzable into constituents belonging to distinct ontological categories in terms of which the character of concrete particular objects is to be explained. Thus, non-constituent ontologists must meet whatever explanatory challenges arise in connection with these entities without taking recourse to any internal structural features **(p.16)** that can be ascribed to concrete particular objects themselves. Consider, for example, the question of how (if at all) a concrete particular object (e.g., a tomato) is related to the properties it possesses (e.g., the tomato's redness). A non-constituent ontologist can either reject or accept the invitation to explain what it takes for a concrete particular object to have the features that it does (e.g., a tomato's being red) in terms which posit a relation between the concrete particular object (viz., the tomato) and its properties (viz., redness). If she takes the first strategy, she has further work to do to make her claim palatable that in fact no such explanation is needed or called for. If she takes the second strategy, then her account of property possession must be formulated in such a way that it does not locate the properties a concrete particular object possesses "inside" these objects themselves in order to explain why they have the features they do. The non-constituent ontologist faces a similar dialectical situation when it comes to the question of how to explain the objective similarities which hold between pluralities of concrete particular objects (e.g., a sunset, a tomato, and a fire truck).[15]

Perhaps the most important consideration which drove Aristotle to modify the non-constituent ontology he offered in the *Categories* was his desire to formulate an adequate response to the Parmenidean problem concerning change. Parmenides of Elea argued that, if change ever were to occur, it would have to involve either a transition from being to non-being or from non-being to being; and since either of these scenarios, in his view, would give rise to logical contradictions, Parmenides concluded that change is therefore impossible. Aristotle agreed with the Eleatics that something cannot come to be from nothing, or nothing from something, without qualification. However, according to Aristotle's own analysis of change, as put forward in *Physics* I, something always persists through any change that occurs (viz., the matter or subject underlying the change) and something else does not persist through the change (viz., the form or privation). For example, when some wood goes from not being

bed-shaped to being bed-shaped, the wood remains throughout the change. But in order for this process to constitute a change, the starting-point of the transition in question must also in some way differ from its outcome: in the present case, the wood's not being bed-shaped does not persist through the change. In this way, Aristotle concludes that change is possible after all, since it only ever involves something coming to be from nothing (or vice versa) in a qualified way. At the same time, Aristotle's analysis of change led him to attribute a hylomorphic structure to concrete particular objects which he did not previously recognize in his *Categories* ontology.

Difficulties for Universalist Bundle Theorists: Identity and Indiscernibility. A common objection that is raised against the universalist version of the bundle theory is that it seems to be committed to the truth of the very controversial Principle of the Identity of **(p.17)** Indiscernibles (PII). This principle states that necessarily entities which are qualitatively indiscernible are numerically identical.[16] Max Black famously argued that (PII) is false by asking us to consider a universe which allegedly contains nothing but two numerically distinct but qualitatively indiscernible spheres:

> Isn't it logically possible that the universe should have contained nothing but two exactly similar spheres? We might suppose that each was made of chemically pure iron, had a diameter of one mile, that they had the same temperature, colour, and so on, and that nothing else existed. Then every quality and relational characteristic of the one would also be a property of the other. Now if what I am describing is logically possible, it is not impossible for two things to have all their properties in common. This seems to me to *refute* the Principle.
>
> (Black 1952, p. 156)

It seems that universalist bundle theorists are forced to deny that Black's scenario describes a genuine metaphysical possibility. For, by hypothesis, the spheres in Black's scenario are qualitatively indiscernible and, hence, by the universalist bundle theorist's lights, they instantiate the same universals. Since, for the universalist bundle theorist, concrete particular objects are just bundles of those universals that are instantiated by the objects in question, the spheres in Black's scenario will be associated with the very same bundle of universals and the scenario in question therefore really only contains one concrete particular object, rather than two. The universalist bundle theorist thus appears to be committed to the claim that qualitatively indiscernible objects are by necessity numerically identical, and hence to the truth of PII. Those who find it plausible to think that numerically distinct but qualitatively indiscernible concrete particular objects are metaphysically possible must therefore either

abandon the universalist bundle theory or find a way to respond to the objection just raised.[17]

Difficulties for Trope-Theoric Bundle Theorists: Compresence and Unity. Trope-theoretic versions of the bundle theory are not susceptible to the above worry concerning the Identity of Indiscernibles: since these theorists view properties as particulars, they are able to associate the spheres described in Black's scenario with numerically distinct bundles of intrinsically similar tropes. Like their universalist counterparts, however, trope-theoretic variations of the bundle theory do face the following over-generation worry.

Suppose we understand the operation of bundling as one that is akin to (or simply is) mereological composition. Assuming further that the operation of bundling is unrestricted, every plurality of tropes will compose a trope bundle. If we apply this unrestricted bundling operation to Black's scenario, for example, the result will **(p.18)** be that any combination of tropes that are associated with the two spheres itself gives rise to a separate trope bundle. But how, we may ask, does the trope-theoretic bundle theorist then account for the judgment that apparently the scenario described by Black contains exactly *two* concrete particular objects? Are the trope bundles with which the spheres are identified in some way "special," e.g., by being more *unified* than the other combinations of tropes that are present in the scenario in question? In that case, the trope-theoretic bundle theorist might try to avoid the present over-generation worry by claiming that only the more unified trope bundles are to be identified with concrete particular objects, while the less unified ones are "mere" bundles.

At this point, trope-theoretic bundle theorists typically appeal to a relation they call *compresence* or *collocation*, in order to differentiate between those combinations of tropes that give rise to concrete particular objects and those that do not. According to this line of thought, what distinguishes the trope bundles associated with each of the spheres, for example, from all the other possible combinations of tropes that are present in Black's scenario is that the former are all thought to be compresent or collocated within a single region of space-time, while the latter are scattered across different and possibly disconnected regions of space-time. Unfortunately, however, the trope-theoretic bundle theorist's reliance on the notion of compresence or collocation gives rise to well-known difficulties; and, as a result, the overall plausibility of this approach to the metaphysics of concrete particular objects is thereby hampered as well.[18]

Difficulties for Substratum Theorists: Bare Particulars, Essence, and Accidents. Perhaps the most puzzling feature of the bare particularist version of the substratum theory is just the central thesis itself to which it is committed, viz., the idea that each concrete particular object is associated with a bare particular which in some way "underlies" the properties exemplified by the object in

question. Proponents of this approach to the metaphysics of concrete particular objects are quick to point out that we need not think of bare particulars as completely devoid of properties, since it is part of the very job description of these entities that they serve as the bearers of properties. In this way, some of the most obvious objections against the theory, originating from the thought that nothing could be both a particular entity and yet not be qualified in any way, can be avoided.[19]

Let's assume, then, that we need not think of bare particulars as completely unqualified. Presumably, bare particulars are nevertheless characterized as "bare" because whatever properties inhere in them do so only *accidentally*: insofar as bare particulars can be described as having an essence or intrinsic nature of their own at all, it is only in that they are said to be (i) particular, and (ii) capable of acting as the substrata for whatever properties come their way. In that case, however, it becomes difficult to see how, according to thin particularism, some of the properties that apparently belong to a concrete particular object could nevertheless be *essential* to the object in question, even though they inhere in the bare particular with which the object is identified only **(p.19)** accidentally. Thus, thin particularism seems to lead to the unwelcome consequence that there is only one way in which properties can be associated with concrete particular objects, viz., by accidentally inhering in the bare particular associated with the object in question.

Thick particularism, by contrast, has the opposite tendency: it seems to categorize all of the properties that are associated with concrete particular objects, when these objects are conceived of as thick particulars (i.e., facts or states of affairs), as *essentially* or *necessarily* belonging to the objects in question. To see this, consider the role Armstrong assigns to states of affairs as the truth-makers for propositions. In Armstrong's view, in order for a proposition to be true, a certain state of affairs, which acts as the truth-maker for the proposition in question, must obtain. In addition, Armstrong accepts a position known as "truth-maker necessitarianism," according to which the relation between true propositions and their truth-makers is governed by the following principle: necessarily, if the state of affairs (e.g., the tomato's being red) which acts as the truth-maker for a certain proposition (viz., the proposition expressed by the sentence, "The tomato is red") obtains, then the proposition in question is true. Given truth-maker necessitarianism, it follows that states of affairs cannot undergo any changes with respect to their non-mereological constituents (viz., thin particulars and the universals exemplified by them). To illustrate, suppose for example, that the state of affairs consisting in a tomato's being red could persist through a change which might be described by saying that the tomato goes from being red to being yellow. In that case, the existence of the state of affairs in question would no longer guarantee the truth of the proposition for which it is supposed to act as a truth-maker (viz., the proposition expressed by the sentence, "The tomato is red"), since the state of affairs in question now

makes true a different proposition (viz., the proposition expressed by the sentence, “The tomato is yellow”), whose truth is incompatible with the truth of the proposition for which it previously acted as a truth-maker. Given Armstrong’s theoretical commitments, then, his thick particularism requires that it is necessary or essential to the identity of a state of affairs that it consists of the very non-mereological constituents of which it in fact consists.[20]

1.6 Desiderata and Decision Points for Hylomorphists

In the foregoing section, we have considered prominent objections which have been raised in connection with some of the major non-hylomorphic approaches to the metaphysics of concrete particular objects. These challenges also give rise to a set of desiderata and decision points which can guide hylomorphists in their efforts to formulate the most attractive version of their own competing analysis of concrete particular objects.

(p.20) (1) *Property Possession and the Problem of Universals*. As noted earlier, some of the approaches we have encountered (e.g., Platonism, Aristotelianism, austere nominalism, and trope theory) are primarily driven by their commitment to a particular position concerning the metaphysics of properties. These accounts are thus most directly focused on questions concerning property possession and objective resemblance. By contrast, other approaches to the metaphysics of concrete particular objects are in and of themselves compatible with different solutions to the Problem of Universals (e.g., substratum theories or bundle theories). Hylomorphism falls into this latter category: the doctrine’s central thesis, viz., that concrete particular objects are compounds of matter and form, does not automatically legislate a particular solution to the Problem of Universals, although some conceptions of properties are more naturally combined with hylomorphism than others. Proponents of this doctrine can be expected to be more sympathetic to Aristotelianism about universals or trope theory than to Platonism or austere nominalism, given the hylomorphist’s inclination to locate their theory’s central explanatory principles, matter, and form, within the concrete particular objects themselves whose character they are supposed to explain. At the same time, while Aristotelianism about universals or trope theory are both live options for hylomorphists, they would not wish to combine either of these approaches with a bundle-theoretic conception of concrete particular objects, since they do not perceive bundles as sufficiently unified to be able to stand in for matter–form compounds. (We will take up the topic of unity again under point (7)).

Decision Point for Hylomorphists. Is the relation between a concrete particular object and its form as well as the relation between matter and form the same as, or different from, the relation between a property-bearer and its properties (property possession)? In addition to having to weigh their preferences with respect to the metaphysics of properties, hylomorphists face a further issue in this area. Since they regard concrete particular objects not only as compounds

of matter and form but also as the bearers of properties, one wonders whether the relation of property possession (regardless of whether properties are viewed as immanent universals or tropes) is the same as, or different from, the various hylomorphic relations which hold between a concrete particular object, its matter, and its form. Some versions of hylomorphism, viz., those that conceive of forms as property-like entities, lend themselves to the idea that the relations in question can be thought of along the lines of property possession. Other versions of the doctrine, however, reject this idea and view the relation between a hylomorphic compound and its form, as well as the relation between the matter and the form when together they make up a concrete particular object, as different from property possession. We will have further occasion to examine these options as well as the different versions of hylomorphism to which they give rise.[21]

(p.21) (2) *Causation, Explanation, and Change*. The doctrine of hylomorphism is very much designed to respond to questions concerning causation, explanation, and change, among them the following: how do concrete particular objects come into and go out of existence? How do they persist through change? Why are concrete particular objects capable of persisting through some changes but not others? What causes concrete particular objects to be as they are, once they have come into existence? As noted earlier, Aristotle's own hylomorphic analysis of concrete particular objects was first developed in the context of the analysis of change he proposes in *Physics* I, in response to the Parmenidean thesis that change is impossible. In *Physics* II, Aristotle embeds his matter–form distinction into a more general theory of causation and explanation which famously centers around his doctrine of the four causes.[22] Aristotle argues there that *two* explanatory principles, matter and form, are sufficient to account for any kind of change involving natural things (i.e., things which have their own internal principles of change and stability), with matter playing the role of the material cause and form acting as the formal, final, and efficient cause of any such natural change.[23]

Decision Point for Hylomorphists. Can we deduce anything about the ontological category to which the matter and the form of a matter–form compound belong from the causal roles which are assigned to these two explanatory principles? One of the most hotly debated issues among ancient scholars is the question of whether Aristotelian forms should be interpreted as non-repeatable entities (i.e., as individuals or particulars) or as repeatable entities (i.e., as universals or general entities). According to the first interpretation, the form that is present in each matter–form compound is numerically distinct from the form that is present in every other matter–form compound, even when these matter–form compounds belong to a single species and their individual forms therefore closely resemble one another. In contrast, the second interpretation holds that the form present in one member of a species is not only similar to, but the very same form as, the form present in every other member of the same species. In connection with this

debate, some commentators (e.g., Frede and Patzig (1988), Shields (2010c)) argue that only the forms-as-individuals reading can really make sense of the causal work that is supposed to be done by forms within Aristotle's hylomorphic analysis of concrete particular objects. Others, however, **(p.22)** defend the opposing view according to which the causal roles attributed to forms do not require that these entities must be interpreted as unique to each matter–form compound (see, e.g., Loux (1991), especially Ch. 6). We will discover that hylomorphists face equally challenging questions when it comes to the ontological categorization of the matter composing a matter–form compound as well.[24]

(3) *Essence and Accident*. As noted earlier in connection with substratum theories, non-hylomorphic approaches to the metaphysics of concrete particular objects which allow for only a single form of property possession face difficulties accommodating the distinction between what is part of the essence of a concrete particular object and what is merely accidental to it. By contrast, it is central to Aristotle's own hylomorphic analysis of concrete particular objects, and to that of other versions of hylomorphism as well, to take very seriously the distinction between essence and accident, as it applies to these entities. But hylomorphists have options when it comes to the question of how best to approach the essence/accident distinction: while many in fact follow Aristotle's lead and Kit Fine's pioneering work on essence in the 1990s, and accept a *non-modal* conception of essence, the doctrine of hylomorphism as such is also in principle compatible with a *modal* conception of essence.[25]

According to a modal conception of essence, an essential truth is just a modal truth of a certain kind (viz., one that is both necessary and *de re*, i.e., about a certain object); and an essential property is just a feature an object has necessarily, if it is to exist. The essential truths, according to this approach, are thus just a subset of the necessary truths; and the essential properties of objects are just a special kind of necessary property. Quine, for example, has such a modal conception of essence in mind when he argues that the view he calls "Aristotelian essentialism" is incoherent, e.g., because it requires quantification into intensional contexts (Quine (1953)).

But the view Quine calls "Aristotelian essentialism" is for a variety of reasons not one Aristotle himself would have found congenial, since he does not subscribe to a modal **(p.23)** conception of essence. For Aristotle, the characteristics of a concrete particular object can be divided into the following three kinds: (i) those that are part of the essence proper; (ii) those that follow from the essence (viz., the so-called "propria" or "necessary accidents"); and (iii) those that are merely compatible with an object's nature, but not required by it. For example, for Aristotle, while it is part of the essence of planets that they are heavenly bodies that are near, it is merely a *de re* necessary (but non-essential) feature of planets that they do not twinkle; the latter follows from, but is not strictly speaking part

of, the essence of planets. Thus, the definition whose job it is to state the essence of or what it is to be a planet would have to make reference to the fact that planets are heavenly bodies that are near. But the definition should not also make reference to the fact that planets do not twinkle, since this would wrongly represent a derivative feature of planets (namely, their not twinkling) as a basic or non-derivative feature of them (namely, their nearness to the Earth).[26],[27] Finally, other characteristics (e.g., a planet's closeness to a comet) are merely compatible with the nature of planets, but neither part of nor dictated by their essence. In these cases, it is equally compatible with the nature of the concrete particular object that the characteristic either does or does not belong to the entity in question.

Decision Point for Hylomorphists. Is the essence of a matter–form compound identical to its form? Or does the matter composing a concrete particular object also figure into its essence in some way, if only generically? Although hylomorphists tend to agree that the distinction between essence and accident should be placed front and center in their analysis of concrete particular objects, they do not all opt for the same strategy when it comes to the implementation of this desideratum with respect to their central piece of machinery, viz., the distinction between matter and form. In particular, the question arises as to how we are to understand the relation between the *essence* of a concrete particular object, on the one hand, and its *form*, on the other. According to some versions of hylomorphism (e.g., Frede (1985, 1987a); Frede and Patzig (1988); Lowe (1999); Whiting (1984, 1986, 1991, 1992)), the essence of a concrete particular object just is its form.[28] According to other versions of hylomorphism (e.g., Peramatzis **(p.24)** (2011)), a statement of the essence of a matter–form compound in some way includes a reference to its matter as well, e.g., by generically specifying the *type* of matter of which matter–form compounds of a certain kind are composed. Either way, hylomorphists can avail themselves of various options to accommodate the idea that some of the characteristics of a concrete particular object are part of its essence, while others are accidental to it (either by following from its essence or by being merely compatible with the object's nature).[29]

(4) *Identity and Indiscernibility*. Earlier, we saw that approaches according to which concrete particular objects are bundles of universals run into difficulties with respect to scenarios in which we are apparently presented with numerically distinct but qualitatively indiscernible concrete particular objects. Other approaches (e.g., **(p.25)** trope-theoretic bundle theories or bare particularist substratum theories) can respond to such scenarios by pointing to some non-qualitative difference which obtains between any two numerically distinct concrete particular objects, regardless of whether or not we suppose these objects to be qualitatively indiscernible (e.g., a distinction between numerically distinct tropes or bare particulars). A scenario such as that presented by Max Black raises questions about how to differentiate between numerically distinct

objects at a single time. In addition to these questions concerning *synchronic distinctness*, however, we must also consider how different accounts treat the following questions concerning *synchronic, diachronic*, and *cross-world identity*: what, if anything, makes a single concrete particular object identical to itself *synchronically*, i.e., at a single time? What, if anything, makes a single concrete particular object that exists at one time *diachronically identical* to the very same concrete particular object existing at a different time, despite the fact that the object in question may have undergone qualitative change? And what, if anything, makes a single concrete particular object which exists in one world *cross-world identical* to the very same object existing in another world? As in the case of synchronic distinctness, accounts which allow that these questions concerning numerical identity have an informative answer at all find themselves taking recourse to some non-qualitative factor(s) or particular item(s) (e.g., a bare particular, haecceity, or collection of tropes) that is in a certain way associated with the concrete particular object at issue and whose numerical identity in turn is accepted as not further explicable in more basic terms.

Decision Point for Hylomorphists. Not surprisingly, hylomorphists can proceed in a similar fashion, but some of the options that are available to these theorists are distinctive to the hylomorphic analysis of concrete particular objects: (i) to take facts about the numerical identity or distinctness of the *matter* composing concrete particular objects as basic and explain facts about the numerical identity or distinctness of concrete particular objects in terms of facts about the numerical identity or distinctness of their matter; or (ii) to take facts about the numerical identity or distinctness of *forms* as basic and explain facts about the numerical identity or distinctness of concrete particular objects in terms of facts about the numerical identity or distinctness of their forms. In order for the first option to be viable, the matter composing a concrete particular object must be of a suitable ontological type if it is to serve as the principle of individuation for concrete particular objects; similarly for the form, according to the second strategy. Thus, the route taken by hylomorphists in response to questions concerning the numerical identity and distinctness of matter–form compounds can be expected to impact their position with respect to the ontological categorization of matter and form which was brought up in connection with the previous set of questions outlined in (3).

(5) *Material Constitution*. The Problem of Material Constitution concerns the relation between a concrete particular objects and what constitutes it, e.g., the relation between a clay statue and the clay of which it is made. The project of arriving at a plausible **(p.26)** understanding of this relationship has proven to be challenging for metaphysicians, in part because of the following reasons. For one thing, since the relation in question is obviously intimate, there is pressure to regard a concrete particular object and what constitutes it as *numerically identical*: they do, after all, occupy the same region of space-time and share many of their characteristics (e.g., their weight, shape, color, texture, etc.). At

the same time, we also observe that some apparent differences obtain between a concrete particular object and what constitutes it (e.g., temporal or modal differences): for example, a clay statue and the clay that constitutes it can begin or cease to exist at different times and they appear to have different persistence conditions (e.g., the clay can survive smashing, while the clay statue cannot, etc.). The latter apparent differences which obtain between a concrete particular object and what constitutes it create pressure to regard these items as *numerically distinct*. Going this route, however, appears to saddle us with the consequence that regions of space-time which we would normally think of as being occupied by only a single concrete particular object in fact contain multiple numerically distinct but spatiotemporally coincident objects.

The hylomorphic analysis of concrete particular objects seems well suited to yield a solution to the Problem of Material Constitution. After all, at the very heart of the doctrine lies the distinction between a concrete particular object, on the one hand, and its matter and form, on the other hand. Thus, hylomorphists are likely to understand the notion of constitution in terms of the relation between a concrete particular object and its matter. Since a concrete particular object, according to the hylomorphic analysis, is not exhausted by its matter, such approaches have a way of capturing the second set of pressures identified earlier, according to which a concrete particular object and what constitutes it ought to be viewed as numerically distinct. Some hylomorphists (e.g., Rea (1998)) have also tried to accommodate the first set of pressures by allowing for a notion of *sameness* that is to be distinguished from *numerical identity*. While hylomorphism thus delineates the general outlines of a response to the Problem of Material Constitution, different versions of the doctrine have developed the details of their respective proposed solution in different ways.

Decision Point for Hylomorphists. What sort of solution to the Problem of Material Constitution is adopted by a specific version of the hylomorphic analysis of concrete particular objects will therefore depend on how the theorist in question conceives, firstly, of the matter composing a concrete particular object and, secondly, of the relation which holds between a concrete particular object and its matter. Hylomorphists who take concrete particular objects and their constituting matter to be numerically distinct should ideally also have something to say in response to the concern that they are committed to a rampant multiplication of numerically distinct but spatiotemporally coincident objects. Some of the different directions which are available to hylomorphists in this connection will be considered in more detail later.

(6) *Mereological Composition*. As noted in the Introduction, one of the main motivations for the hylomorphic view I developed in Koslicki (2008a) was my desire **(p.27)** to formulate a more full-blooded conception of what it is to be an object than that associated with the still very popular theory of parts and wholes known as standard or classical extensional mereology (see, for example, Leonard

and Goodman (1940); Lewis (1991); Simons (1987)). According to the latter, any plurality of objects, no matter how disparate and gerrymandered, itself composes a further object, even when the objects in question fail to exhibit interesting similarities, internal unity, cohesion, or causal interaction amongst each other. The resulting exceedingly deflationary conception of objecthood, parthood, and composition, however, is not only committed to all sorts of counterintuitive objects (such as Lewis' infamous "trout-turkey"); it is also unable to draw such intuitively obvious distinctions as that between, say, a properly assembled motorcycle in running condition and a heap of disassembled motorcycle parts. In contrast, according to my own approach, composition is restricted and takes place only when the material parts which come to compose a concrete particular object satisfy certain conditions which are set by the formal components that are associated with the whole in question. In particular, in order for a plurality of objects to come to compose a further object, these objects must satisfy two kinds of constraints, viz.: (i) type constraints, and (ii) configuration constraints. To illustrate, in order for some objects to come to compose an H_2O molecule, the objects in question must, first, be of the right kind (viz., in this case, two of the objects must be hydrogen atoms and one an oxygen atom); and, second, these objects must be configured in the right way (viz., the atoms in question must be arranged in the manner of chemical bonding, which requires them to share electrons).

In addition, I argued that the organizing principle that is associated with structured wholes (viz., their form) is itself literally and strictly speaking part of the whole it organizes, so that structured wholes, on my conception, turn out to be compounds of matter and form. There is thus, on this view, an important difference between a properly assembled motorcycle in running condition and a heap of disassembled motorcycle parts. In the first scenario, the motorcycle parts in question compose a further object, viz., a motorcycle, while in the second the very same motorcycle parts do not compose a further object, since they do not satisfy the structural constraints associated with any genuine kind to which we want to be committed for independent reasons. As a result, the neo-Aristotelian conception of concrete particular objects to which I am sympathetic promises to yield a mereology that aligns more naturally with the scientifically informed common-sense ontology to which we are committed for reasons unrelated to the mereological framework we adopt.

Decision Point for Hylomorphists. Should hylomorphists aim for a restricted notion of mereological composition? If so, how can the apparatus of matter and form be put to use to impose an appropriate restriction on mereological composition? It is certainly open to hylomorphists to endorse restricted notions of composition, though not all of them do (e.g., Fine (1982); Johnston (2002, 2006)). Even for those hylomorphists who are sympathetic to such mereologies, a further question arises as to how exactly **(p.28)** composition is supposed to be restricted. Presumably, form plays some role in this; beyond that, however,

hylomorphists can avail themselves of different methods by which the relevant restrictions are to be imposed.[30]

(7) *Unity*. Aristotle holds that some complex entities (viz., wholes) are more unified than others (e.g., heaps). In a celebrated regress argument which is given at the end of *Met*. Z.17, Aristotle illustrates the distinction he has in mind by citing the syllable, "BA," and flesh as examples of unified wholes. We can see from considering these cases, so Aristotle reasons, that there must be more to a syllable or to flesh besides the matter that composes them: a "something else" (*heteron ti*). For it is possible for the syllable, "BA," or flesh to be dissolved into its material parts, viz., the elements (*stoicheia*) of which they consist (the letters "B" and "A"; earth, air, fire, and water). In this case, the unified whole in question (the syllable; flesh) is gone, but the elements of which it previously consisted (the letters; earth, air, fire, and water) are still there.

What could this "something else" be? Aristotle considers three possibilities: either (i) the "something else" is itself an element; or (ii) it is composed of elements; or (iii) it is neither an element nor composed of elements. The first and the second cases, Aristotle reasons, lead to a regress. As a result, he embraces the third possibility; the "something else" is neither itself an element nor composed of elements:

> The syllable, then, is something—not only its elements (the vowel and the consonant) but also something else; and the flesh is not only fire and earth or the hot and the cold, but also something else. […] But it would seem that this is something [*ti touto*], and not an element [*stoicheion*], and that it is the cause [*aition*] which makes *this* thing flesh and *that* a syllable. And similarly in all other cases. And this is the substance of each thing [*ousia de hekastou men touto*]; for this is the primary cause of its being [*touto gar aition prōton tou einai*]; and since, while some things are not substances, as many as are substances are formed naturally and by nature, their substance would seem to be this nature [*phusis*], which is not an element but a principle [*archē*]. An element is that into which a thing is divided and which is present in it as matter [*hulē*], e.g. *a* and *b* are the elements of the syllable.
>
> (*Met*. Z.17, 1041b16–33)

Based on this regress argument, Aristotle takes himself to have established by the end of *Met*. Z.17 that there is more to a unified whole than its matter. Assuming, as is natural, that the "something else" in question is the form, we therefore reach the conclusion that unified wholes must be conceived of as compounds of matter and form. By contrast, as the case of heaps illustrates, pluralities of elements which are not unified by the presence of form within them

can be expected to lack the high degree of unity characteristic of matter–form compounds.[31]

Decision Point for Hylomorphists. But how exactly does the presence of form in a matter–form compound help to account for the degree of unity that is manifested by these **(p.29)** objects? Sadly, the notion of unity has up to this point not nearly received the attention it deserves from contemporary metaphysicians. Those theorists who have tried to offer accounts of unity tend to approach this subject matter from an Aristotelian perspective (see, for example, Hoffman and Rosenkrantz (1999)). It is common among hylomorphists to follow Aristotle's lead in designating at least a certain privileged class of matter–form compounds as manifesting a high degree of unity: traditionally, the privileged class of unified wholes has been thought to include living organisms and perhaps other natural concrete particular objects, i.e., those which are not designed or created by intentional agents but are rather the results of natural processes. The high degree of unity which is ascribed to matter–form compounds is commonly traced in some way to the presence of form within these matter–form compounds. More remains to be said, however, about how exactly the form of a matter–form compound is thought to carry out its responsibility of tying together the material parts composing a matter–form compound into a unified whole. The topic of unity will be taken up again in more detail in Chapter 7.

(8) *The Grounding Problem*. The Grounding Problem poses a challenge especially for those who opt to respond to the Problem of Material Constitution by positing numerically distinct spatiotemporally coincident objects. For coincidence theorists, such scenarios are by no means a rare and exceptional metaphysical possibility; rather, we are presumably surrounded by vast numbers of actually coincident objects, everywhere we look. Given this approach, then, the question arises as to how these numerically distinct but spatiotemporally coincident objects can be different in various respects (e.g., with respect to their temporal or modal characteristics) despite the fact that they are similar in so many other respects. In particular, coincident objects are apparently composed of the same material parts; they share the same location in space and time; and they agree with respect to all those characteristics which we would normally trace to the fact that they share the same matter and spatiotemporal location (e.g., weight, shape, texture, color, etc.). The Grounding Problem thus prompts coincidence theorists to offer some account of what *grounds* the apparent differences between numerically distinct spatiotemporally coincident objects.

The Grounding Problem certainly poses a serious challenge for coincidence theorists, whether they embrace hylomorphism about concrete particular objects or not. And while the doctrine of hylomorphism does not by itself generate a complete solution to the Grounding Problem, it does provide those who are sympathetic to this approach with some promising directions to pursue which may or may not be as easily accessible to other coincidence theorists who do not

also subscribe to hylomorphism.[32] In particular, coincidence theorists can hope to make some headway toward finding a solution to the Grounding Problem, if they combine their analysis of concrete particular objects with a *non-modal* conception of essence, mentioned earlier in connection **(p.30)** with (3). According to such approaches to the essence/accident distinction, facts about the essences of concrete particular objects are taken as *basic* and facts about their *modal* properties (i.e., facts about what is necessary but non-essential to these objects) are regarded as, at least in part, *derivable* from these primitive essential facts. As a result, a hylomorphic analysis of concrete particular objects, when combined with a suitable approach to the essence/accident distinction, can respond to the challenge posed by the Grounding Problem. My own approach, as will be elaborated further in Chapter 4, proposes to explain the modal differences which apparently obtain between numerically distinct spatiotemporally coincident objects in terms of differences between their respective essences, together with whatever further considerations turn out to be relevant to the derivation of the non-essential features of hylomorphic compounds from facts about their essences.

Decision Point for Hylomorphists. The questions posed by the Grounding Problem thus take us back to some of the decision points for hylomorphists which were brought up earlier in connection with the essence/accident distinction: should hylomorphists opt for a non-modal conception of essence or a modal conception of essence? If the former, how do the necessary accidents *follow from* the essence of a concrete particular object? If the latter, what is the proper hylomorphic response to the Grounding Problem? Hylomorphists who go the non-modal route can opt for the response to the Grounding Problem outlined earlier. For those who reject a non-modal conception of essence, it remains to be seen what sort of response to the Grounding Problem is in the offing.[33]

1.7 Conclusion

In this chapter, I have reviewed existing approaches to the metaphysics of concrete particular objects and positioned the doctrine of hylomorphism, according to which concrete particular objects are to be analyzed as compounds of matter and form, with respect to these competing accounts. The literature is divided over whether concrete particular objects are or are not further analyzable into constituents which do not themselves belong to the ontological category of concrete particular objects and in terms of which the character of these latter entities is to be explained. Constituent ontologies (e.g., bundle theories or substratum theories) attribute such a constituent structure to concrete particular objects and appeal to this structure in explaining the character of concrete particular objects. By contrast, non-constituent ontologies (e.g., Platonism or austere nominalism) deny that concrete particular objects are further analyzable into constituents which do not themselves belong to the same ontological **(p.31)** category as the wholes or complex entities to which they belong; such frameworks therefore do not attempt to explain the character of

concrete particular objects by appeal to such a constituent structure. In our brief survey of these non-hylomorphic approaches to the metaphysics of concrete particular objects, we considered prominent objections which have been raised against these accounts, though without being able to enter into these debates in any detail. This overview in turn gave rise to a set of desiderata and decision points which hylomorphists should keep in mind as they formulate their own competing analysis of concrete particular objects.

In particular, hylomorphists encounter various choices when they put to use their central piece of machinery, viz., the distinction between matter and form, with respect to the following problem areas:

(1) *Property Possession and the Problem of Universals*: a concrete particular object's relation to its own properties and those it apparently shares with objectively similar objects;
(2) *Causation, Explanation, and Change*: a concrete particular object's character at a time, how it comes into and goes out of existence, and its ability to persist through certain kinds of changes;
(3) *Essence/Accident*: what is part of the essence of a concrete particular object and what belongs to it merely accidentally;
(4) *Identity and Indiscernibility*: the source of facts concerning the numerical identity and distinctness of concrete particular objects;
(5) *Material Constitution*: the relation between a concrete particular object and what constitutes it;
(6) *Mereological Composition*: the conditions which must be met in order for a plurality of concrete particular objects to compose a single such object;
(7) *Unity*: how a unified whole can emerge from a plurality of material parts;
(8) *The Grounding Problem*: how numerically distinct spatiotemporally coincident objects can nevertheless differ with respect to their temporal or modal profile.

The explanatory goals identified here will continue to guide us in our development of a hylomorphic analysis of concrete particular objects in the chapters to come.

Notes:

([1]) I opt for the label "non-constituent" instead of the commonly used label "relational" to characterize non-constituent ontologies, since not all non-constituent ontologies (e.g., austere nominalism) are naturally characterized as relational. The contrast between "constituent" and "relational" ontologies comes from Wolterstorff (1970); for further discussion, see also Loux (2005, 2006b, 2014); Lowe (2012b); and van Inwagen (2011). David Armstrong uses a similar distinction between "blob" and "layer cake ontologies" (Armstrong (1989), pp.

76–7). To attempt to classify ontological theories by means of taxonomies such as those just cited is by no means straightforward. I will not pursue these difficult issues further here, since I do not intend to put much philosophical weight on these divisions. I merely use them as a heuristic device in Chapter 1 to introduce alternative approaches to the metaphysics of concrete particular objects with which hylomorphists must compete.

([2]) Aristotle is careful to distinguish his "being in a subject" relation from parthood (see *Cat*. 2, 1a24–5) and is thereby able to maintain in the *Categories* that the parts of substances are themselves substances:

> We need not be disturbed by any fear that we may be forced to say that the parts of a substance, being in a subject (the whole substance), are not substances. For when we spoke of things *in a subject* we did not mean things belonging in something as *parts*.
>
> (*Cat*. 5, 3a29–32)

This and all further passages from Aristotle's *Categories* come from the translation by J. L. Ackrill (see Barnes (1984)).

([3]) Loux (2006a) uses the term "austere nominalism" to describe a type of nominalist ontology which posits only concrete particular objects and which takes facts concerning objective resemblance between concrete particular objects to be fundamental and not open to further analysis or explanation (see Loux (2006a), pp. 52–3).

([4]) See, for example, Armstrong (1989) for a useful introductory survey of the Problem of Universals and prominent responses to it.

([5]) The original Platonist was of course Plato himself: see, for example, the theory of forms as it is defended in Plato's so-called middle dialogues (e.g., *Phaedo, Symposium, Republic*). For a more recent defense of Platonism, see, for example, van Inwagen (2004).

([6]) In what follows, I use the term "substratum theory" to refer to a type of constituent ontology which holds that each concrete particular object, in addition to the properties it exemplifies, is also associated with a further type of constituent, viz., a substratum of some type. But the phrase, "substratum," can also be used in a more neutral way (see, e.g., Brower (2014)), according to which a substratum is any type of being (constituent or not) which bears the properties exemplified by a concrete particular object. On this construal, even non-constituent ontologies could in principle be classified as substratum theories: a Platonist, for example, who views concrete particular objects as metaphysically unstructured "blobs," might nevertheless take them to be substrata for their properties; for such a Platonist, then, a substratum would be

an entity (viz., the concrete particular object itself) which stands in certain relations (e.g., exemplification, participation, or instantiation) to transcendent universals.

([7]) Bertrand Russell, at one point in his career, subscribed to universalist bundle theory (Russell (1940)); for a more recent defense, see Paul (2002).

([8]) It is best not to refer to tropes as “accidents,” if we want to leave open the possibility that some tropes are essential to their bearers.

([9]) David Hume is generally read as a proponent of trope-theoretic bundle theory (see Hume (2007)). More recent defenders include Keith Campbell and D. C. Williams (see, for example, Campbell (1990) and Williams (1953a, 1953b)).

([10]) John Locke famously posited a something “I know not what” which underlies the properties associated with a concrete particular object (see Book II of Locke (1975)).

([11]) A thin particularist may nevertheless be regarded as a constituent ontologist, even if such a theorist takes the thin particular associated with a concrete particular object itself to be simple and metaphysically unstructured. For presumably the thin particularist will nevertheless accept the existence of thick particulars and these entities do contain thin particulars as constituents. See, for example, Sider (2006) for further discussion.

([12]) For a version of factualism, see, for example, the early Ludwig Wittgenstein’s *Tractatus Logico-Philosophicus*; a more recent development of a factualist approach can be found, for example, in Turner (2016).

([13]) Brower (2014) classifies the version of hylomorphism he ascribes to Aquinas as a type of substratum theory, viz., a version of thick particularism. My decision to treat hylomorphism separately is motivated by a mostly practical concern. I want to preempt the following possible misconception which holds that, if hylomorphism is classified as a type of substratum theory, then it must be made to fit into one of the other two varieties of substratum theory just cited, both of which are versions of bare particularism (viz., thin and thick particularism). The interpretation of hylomorphism I go on to defend differs in important respects from both of these varieties of substratum theory. However, assuming that we can ward off the mistaken assumption that hylomorphists must take on board a commitment to bare particulars, I have no objection to going along with Brower’s classification of hylomorphism as a type of substratum theory. Whether hylomorphism is best interpreted as a type of thick particularism is a further question on which Brower and I reach different conclusions.

([14]) What follows is familiar ground and my exposition will therefore be relatively condensed. For more detailed discussion, see, for example, Brower

(2014), especially Chapters 2, 6, and 7; Laurence and Macdonald (1998); Loux (2002); Macdonald (2005); and Rea (2014).

([15]) E. J. Lowe, for example, a contemporary critic of Platonism, is puzzled by how positing an external relationship of some kind between a “blob-like” concrete particular object and a transcendent universal could contribute to an explanation of why concrete particular objects have the features they do (see Lowe (2012b), pp. 234–5). To this kind of criticism, Peter van Inwagen, a modern-day defender of Platonism, replies that, while indeed his account does not yield an explanation of exemplification or objective resemblance, none should be expected either (see van Inwagen (2011), p. 398).

([16]) It is tricky to say precisely how the distinction between qualitative and non-qualitative properties is to be drawn. For present purposes, we may rely on the rough characterization of this distinction given in Adams (1979): “ … a property is purely qualitative—a suchness—if and only if it could be expressed, in a language sufficiently rich, without the aid of such referential devices as proper names, proper adjectives, and verbs (such as ‘Leibnizian’ and ‘pegasizes’), indexical expressions, and referential uses of definite descriptions” (1979, p. 7).

([17]) See, for example, O’Leary Hawthorne, and Cover (1998) for a response to Black’s scenario on behalf of the universalist bundle theorist. See also Hawley (2006); Paul (2012, 2013, 2016, 2017); Saunders (2003, 2006a, 2006b).

([18]) See, for example, Simons (1994), pp. 558–65, for a discussion of some of the problems surrounding the trope-theoretic bundle theorist’s use of the notion of compresence or collocation.

([19]) For further critical discussion of bare particularism, see, for example, Bailey (2012).

([20]) See Armstrong (1997) and (2004). Other versions of factualism are susceptible to similar worries: see, for example, the arguments provided in Wolterstorff (1970) in connection with Gustav Bergmann’s constituent ontology.

([21]) One issue which has traditionally divided those who endorse different solutions to the Problem of Universals is that of ontological parsimony, i.e., the desire to keep the number of distinct ontological categories to which one’s theory is committed as low as reasonably possible. Although the issue of ontological parsimony is an important dividing line by means of which different ontological theories can be distinguished, I will not include it here as a separate decision point or desideratum for hylomorphists. Rather, ontological parsimony, along with other “intellectual virtues” (e.g., simplicity, explanatory power, etc.), strikes me as more suitably classified as a sort of meta-criterion by means of

which all ontological theories can be evaluated; and hence it is not specific to the debate concerning the metaphysics of concrete particular objects.

([22]) See, for example, Shields (2010a), Section 2, for further discussion of how Aristotle's matter–form distinction is motivated by the framework he adopts to address questions concerning causation, explanation, and change. In the Thomistic case as well, Brower (2014) provides powerful arguments that the commitment to hylomorphism directly emerges from Aquinas' analysis of change.

([23]) For Aristotle's position that, in the case of natural things which are subject to change, the formal cause, the final cause, and the efficient cause coincide, with all three causal roles taken up by the form of a matter–form compound, see, for example, *Phy*. II.2, 194a27–30, *Phy*. II.7, 198a22–31, and *Phy*. II.8, 199a30–2. For further discussion concerning the causal priority of form in Aristotle, see Koslicki (2014).

([24]) A further decision point arises for hylomorphists in connection with the question of how concrete particular objects are apparently able to persist through change over time. According to the position known as *perdurantism* or *four-dimensionalism*, concrete particular objects exist at a particular time by having a temporal part that exists at the time in question. The opposing position, known as *endurantism* or *three-dimensionalism*, denies this claim and holds that concrete particular objects which persist over time are, in some sense, "wholly present" at each time at which they exist. I will not enter into this debate here; but see Koslicki (2003) and (2008a), especially Chapter 2, for further discussion.

([25]) See especially Fine (1994a, 1995a, 1995b, 1995c). Other contemporary neo-Aristotelians who have gravitated toward a non-modal conception of essence include the following: Gorman (2005); Koslicki (2012a, 2012b, 2013a, 2013b); Lowe (1994a, 1998, 2006, 2007, 2008, 2012a, 2013); Oderberg (2007, 2011); Tahko and Lowe (2015). The conception of essence and necessity advanced in Hale (2015) is similar in many ways to Fine's, though the label "non-modal," strictly speaking, does not apply to it, since Hale takes as basic certain modal truths, viz., the essential truths, from which other necessary truths are supposed to be derivable. For the purposes of this discussion, however, I am happy to subsume Hale's account under the label, "non-modal," as it is used in the text, since I really have in mind approaches that reject the reduction of essence to modality and hold instead that, if any such reduction is possible at all, it would have to proceed in the opposite direction. The contrasting model, which does take essence to be reducible to modality, dominated the metaphysical landscape for many decades starting in the 1970s; see, for example, Forbes (1985); Lewis (1986); Mackie (2009); and Plantinga (1974), for some representative examples.

([26]) See, for example, Aristotle, *Posterior Analytics*, A.13 and B.16. Aristotle thought of the planets and other heavenly bodies as being arranged and moving in accordance with a series of fixed heavenly spheres, with the Earth lying at the center. In Aristotle's view, this arrangement of the heavenly bodies, including their movements and their position relative to the Earth, is not subject to change, since it is eternal, necessary, and perfect.

([27]) The idea that something might be part of the essence or included in the definition (a statement of the essence) of something else is no doubt at first sight puzzling and stands in need of elucidation. See Koslicki (2012a) and (2012b), for some relevant discussion. In Fine's view, which will be considered in more detail in Section 5.3.2, essences are propositions (or collections of propositions) and these propositions are taken to have constituents. According to this conception, one can understand the idea of something being part of the essence of something else in terms of the notion of being a constituent of a proposition. Even if one does not want to go along with Fine's propositional conception of essence, there is still the option of understanding something being part of the essence of something else in terms of the former being a constituent in the real definition of the latter.

([28]) I cite Lowe (1999) here as an example of a hylomorphist who takes the essence of a concrete particular object to be exhausted by its form (see, e.g., Lowe (1998), Ch. 9, "Matter and Form," especially pp. 190–203). This ascription, however, needs to be qualified in certain respects. For one thing, Lowe argues that the essence of a concrete particular object should not be taken to be a further entity that is numerically distinct from the object itself (see Lowe (2008)). In addition, there is some question as to whether Lowe should even be counted as a hylomorphist at all. After all, we do find Lowe, in various of his writings, distancing himself from hylomorphism, which he interprets as giving rise to a particular type of constituent ontology. Instead, Lowe argues that his own view, viz., the "four-category ontology" (see Lowe (2006)), which is inspired by Aristotle's *Categories*, fits neither the constituent nor the relational mold (Lowe (2012b)). Lowe is happy to take on board the hylomorphist's notion of form, but only as long as forms are not interpreted as constituents of concrete particular objects. Forms, in Lowe's view, can be either construed as universals or as particulars. In the first case (i.e., if forms are construed as universals), they can be viewed as substantial kinds instantiated by concrete particular objects. Lowe cautions us, however, that instantiation is not to be reified as a further entity, i.e., a relation which holds between a kind and its instances. In the second case (i.e., if forms are construed as particulars), they can be taken to be particular instances of substantial kinds, in which case a concrete particular object simply *is* (i.e., is numerically identical to) a particularized form (see Lowe (1999)). Either way, no sense can be made, in Lowe's view, of taking forms to be constituents of concrete particular objects. Concerning matter, Lowe remarks: "I have no serious need for the hylemorphist's category of *matter*. I might be

prepared to say that the ‘matter’ of the hydrogen atom is or consists of *its proton and electron*, but just in the sense that these are its *parts* and serve to *compose* it” (see Lowe (2012b), p. 237). Lowe also allows that the parts composing a concrete particular object need not themselves be concrete particular objects, namely, in cases in which a concrete particular object (e.g., a rubber ball) is composed of *stuff* (viz., a portion of rubber), though it may turn out that the stuff in question is ultimately composed of further concrete particular objects, e.g., microscopic particles (see Lowe (1999), pp. 3–5). Overall, then, we find that Lowe’s main concern is to distinguish his own view from a hylomorphic *constituent* ontology. But as long as we allow for non-constituent readings of hylomorphism, which also resist the collapse into a relational ontology, I see no obstacle to classifying Lowe as a certain type of hylomorphist, since he does seem to hold that the distinction between matter and form, when properly interpreted, is of use within a metaphysical theory of concrete particular objects.

([29]) Relatedly, accounts of concrete particular objects which do not make room for a distinction between what is essential and what is merely accidental to a concrete particular object also have trouble capturing the distinction between substantial and non-substantial change. (This issue was already hinted at in connection with the previous set of desiderata, when we asked “Why are concrete particular objects capable of persisting through some changes but not others?”.) Concrete particular objects undergo a non-substantial change when they change with respect to one or more of those of their characteristics that are neither part of their essence nor follow from their essence. In contrast, a substantial change requires that a concrete particular object either comes into, or goes out of, existence. Since the distinction between substantial and non-substantial changes is already covered jointly by (2) and (3), I will not list it separately in my catalog of desiderata and decision points. I very much agree with Brower’s assessment that the importance of capturing the contrast between substantial and non-substantial changes is often overshadowed in contemporary discussions by the almost exclusive focus on the problem of temporary intrinsics which is solely concerned with instances of non-substantial change (see Brower (2014), pp. 174–83).

([30]) Given that I have already weighed in on these mereological questions in Koslicki (2008a) and in other previously published work, I will not devote much attention to these topics in this study.

([31]) I discuss my reading of Aristotle’s regress argument in *Met*. Z.17 in more detail in Koslicki (2006, 2008a, and 2014). See also Mann (2011).

([32]) For arguments to the effect that hylomorphism does not contribute a distinctive solution to the Grounding Problem, see Sidelle (2014).

([33]) In collecting together these desiderata and decision points, I have been very much helped and influenced by the discussion of hylomorphism in Brower (2014) and Rea (2014). In his discussion of Aquinas' version of hylomorphism, Brower emphasizes many of the issues cataloged here, in particular: property possession, change, the essence/accident distinction, identity, and material constitution. Rea (2014) addresses many of these topics as well, in his exposition, and points out furthermore that hylomorphism is naturally combined with a restricted notion of mereological composition.