Aristotle's Metaphysics of Matter

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Many people are not sure whether god(s), angels, spirits, ghosts or souls really exist; yet, they have little hesitation about the objects that surround them. Tables and rocks, drops of rain, mountains, and cars... surely, all these things must be real since we act, react, and interact with them every day. It is as if pointing to the material stuff around us was a sufficient warrant to guarantee their reality. Even people who are not committed to materialism – i.e., to the claim that if something is real then it must be material – readily admit the converse: if it is material then it must be real. In other words, the class of what is real may be larger than what is material but, for sure, what is material has to be real.

All this seems perfectly satisfactory until one asks a further question: "So, what is matter?" From the fact that we commonly take its reality for granted, it does not follow that we know what it is. We might then want to enlist science, but the question "what is matter?" is one that the so-called material sciences, do not ask. Indeed, they cannot, at best, they can reduce it to another question (what is energy?). "What is matter?" is a question that remains at the level of the scientifically inaccessible assumptions of science. Our best theories for how matter *behaves* still tells us very little about what matter *is*. Yet, what science cannot answer is not necessarily meaningless. The properly philosophical ques-

tion takes the following form: how can we say that something that is no "thing" (i.e., no determinate thing) still *is*? And this is a metaphysical but not a scientific question.

Consider a bronze statue such as the Artemision Zeus preserved in Athens' Archeological Museum. The shape of the god belongs accidentally to its matter which is its substratum (*hupokeimenon*) since bronze can exist apart from the statue and it possesses its own properties that are not properties of the god himself (bronze is an alloy, Zeus is not). The bronze can itself be submitted to a further hylomorphic analysis since bronze is composed of copper and tin. Do these have a better claim to be the true substratum? What is at the bottom of it all? If we remove the layers of forms which belong accidentally to the matter either the stripping continues indefinitely because at each stage, we find a substratum that has an intrinsic form that belongs accidentally to the matter below or we finally encounter a substratum that is in its own right but is not a composite.

Prime matter would be the ultimate underlying substratum that is, ontologically, more basic than the elements (earth, air, water, and fire) and the primary contraries (hot/cold, wet/dry). It is supposed to constitute the elements (since the elements are themselves hylomorphic bodies, thus instances of substances) and it is assumed to persist through elemental changes since all changes require two opposites – a form, a corresponding privation, and something that underlies them.

The status of prime matter divides modern commentators on two issues: (a) whether Aristotle was truly committed to it (b) whether the notion is even coherent. By combination we get four possible default positions. Asking whether Aristotle believed in prime matter really comes down to the question: is it demanded by his ontology? The second issue is clearly the most fundamental (we wouldn't wonder about Aristotle's commitment unless we had doubts about its consistency).

Those who declare prime matter incoherent (e.g., Graham) do so on the ground that what is deprived of characteristics or properties is simply nothing. Those who try to salvage the notion claim that it must have some essential characteristics (Cohen and Byrne, for instance, appeal to extension, movability, and corporeality). As it stands, the debate turns on the soundness or expandability of prime matter and the possibility of reifying it.

This paper proposes a functional alternative: the concept of prime (or ultimate) matter is not simply an *ad hoc* response to the threat of infinite regress; it harbors the possibility of another ontology, one that is an alternative to substantialism (the view that posits substances underlying their properties as ontological primitives). This suggests that within Aristotle's corpus lurk conceptual possibilities that can take us beyond substantialism.

I. Hylomorphism, Analysis, and Stripping Away

If we read Aristotle as a proto-phenomenologist, then hylomorphism constitutes our starting point. Whether natural or artificial, the entities that populate our daily surroundings present a duality of form and matter. We can ask about anything we encounter

two distinct questions: what is it? (a question concerning form) and what is it made of? (a question concerning matter). If we know the answer to only one of these questions, we may still be unable to answer the other: that this is a table does not tell us what it is made of since a table could be made of wood or marble, glass or metal; likewise, that an object is made of clay and silica does not tell us whether it is a pitcher, a vase or a goblet.

To say that hylomorphism constitutes Aristotle's *starting point* is to stress that Aristotle does not posit forms existing by themselves that would subsequently be joined with matter or vice versa. As Falcon observes "matter is an existentially inseparable, but definitionally separable, potential being" (Falcon 2022: 6). Rather, the starting point is the recognition of informed matter as it occurs in all individual substances around us. Forms are always encountered as enmattered and matter is always encountered as informed. The unity of form and matter is phenomenologically primary; their distinction is posterior.

> Substance is so spoken of in three ways, as we have said, and of these cases one is form, another matter, and the third the product of the two; and of these, matter is potentiality and form actuality. And since the product of the two is an ensouled thing, the body is not the actuality of the soul, but the latter is the actuality of a certain kind of body" (Arist. *DA* II 1, 414a14–18).[1]

There are different levels of matter and at each level, matter is substratum for the next increment of form that lies above it. What serves as the matter of something at all levels of complexity (for instance, in biology from cells to tissues, to organs, to the whole organism) cannot exist outside the complete substance of the animal. Aristotle defines an element of bodies as "the first constituent out of which something is composed, indivisible in form into another form" (Arist. *Metaph*. IV 3, 1014a26). In turn, the individual substance is itself the substratum for its various subsequent accidents.

What then is matter? Before becoming a metaphysical concept, *hulē* was an ordinary word for lumber and construction material in general.[2] This is probably why Aristotle often combines in the same passage instances of organisms and instances of artifacts to suggest that what is true in one case also applies, *mutatis mutandis*, to the other.

Yet, the analogy between construction material in the case of artifacts and the material components of natural things remains an approximation. The flesh of an animal and the constituents of an artifact are not truly similar. The organs that constitute an animal (liver, lungs, brain, heart...) and the kinds that constitute its proximate matter (bone, sinew, muscle, skin, blood, and so forth) do not preexist the animal while bricks, stones,

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[1] All translations mine unless otherwise mentioned.

[2] The Liddell, Scott, Jones *Greek-English Lexicon* lists the following senses of *hulē*: "forest" and "forest tree" in Herodotus; "timber" in Plato and Theophrastus; "material" in Plutarch, then the more technical sense of "matter" in Aristotle and Proclus.

lumber, nails preexist the house. Furthermore, *living* matter presents features that are unlike anything we find in inorganic materials.

Aristotle is fully aware of the difference since he argues that a corpse is not really a body anymore. "For it is not a finger in any and every state that is the finger of an animal, rather a dead finger is a finger only by equivocation" (Arist. *Metaph*. VII 10, 1035b9–25). Thus, to call a corpse (*nekros*) a body (*sōma*) is to equivocate on the ground of a likeness of the former with a truly living body. This suggests that in death, the destruction of the soul (the form) is tantamount to the destruction of its proper matter. As Koslicki puts it:

> The uniqueness in the material composition of living things is not only created from the top down, through very specific functional requirements, but also from the bottom up, through a receptiveness on the part of living matter that is directed only toward a single natural form" (Koslicki 1997: 92).

The organic body – the animal proximate matter – is essentially alive; flesh has a form by nature and not by accident. By contrast, the construction materials of a house retain a certain integrity both before the construction and after the destruction of the house; they were and still are bricks, lumber, nails, or stones and with some ingenuity they could be reused. Thus, they are not called so by equivocation, for when it comes to artifacts, matter has a form contingently.

Furthermore, in the case of artifacts, *hulē* reveals a feature that is not visible in natural things. In an artifact, what is numerically one and the same can be used as the matter of another: the stone from one building could be used as material for another one, the wood of a table could be used to make a door just as the Wellington statue in Aldershot (Hampshire, England) was cast with melted down cannons used in the battle of Waterloo. Such a literal trans-formation seems impossible with living tissues.[3]

Matter may seem ontologically inferior to form since it serves as its receptacle; yet it outlives it. Thus, in the case of what is generated by nature (in particular, in the case of living beings) not only is the principle of generation internal (a seed) while in the case of what is generated by *technē* the principle of generation is external (the builder or craftsman) but the kind of material to which the principle of generation applies has a different function.

Finally, the relation between the material substratum and its form in the case of artifacts is accidental. A table is still a table whether it is made of wood, stone, glass and metal and the statue of Zeus is still formally the same thing whether it is made of bronze or marble. The substratum is none of its accidental properties. In the case of living beings, however, the substratum must already have some determinate properties to contract the soul/form substantial unity.

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[3] Organ transplant is, of course, possible, but the transplanted organ retains the same form and is intended to perform the same function in another body.

As is often the case, Aristotle's conceptual vocabulary is multifarious, the same term takes on different senses depending on the context. This is the case not only with *hulē*, as we saw, but also with form (*morphē*):

1. In some cases, form has the ordinary sense of the outline of the shape or figure (as in the example of a "bronze sphere" where sphericity is the form in the sense of the shape that happens to be filled by bronze but could as well be filled by any other material).
2. *Morphē* takes on a more conceptual sense when it stands for the functional organization of something (thus, linking it to the notion of final cause – in which case, to ask about the "form" of a thing is to ask what the thing is for, its function or purpose). For instance, the soul is the form of a body potentially having life; it is what identifies as "alive" anything that grows, moves, perceives, or thinks of its own accord. In this instance, *morphē* is the essence that any proper definition must state; it functions as a principle that orders and organizes matter. Stressing this dynamic and organizational sense of *morphē* in relation to matter, Alexander of Aphrodisias writes:

> To [show] that form is not in matter as in a substrate, it was said that soul is not in body either, since the form is the cause for the matter's being in actuality (for it is not possible for it to be in [real] existence apart from the form (Alex.Aphr. *Qaest*. 1.8, 117, 8–11; transl. Sharples 1992: 43).

3. Finally, *morphē* is the essence and actuality of something. In a political context, for instance, the constitution is the form of a political community, it unifies the body politics and makes it be what it is (e.g., a democracy, an oligarchy, a monarchy, or a tyranny). At this level, what a thing is under the guise of its proximate matter does not substantially differ from what it is under the guise of the form except for the fact that the former is in potency.

To begin with hylomorphism is then to begin with a unified pair; there is no radical heterogeneity of matter and form. What is informed cannot be without what informs it and vice versa. As Byrne observes: "The potentiality of the material cause, then, is not just a privative concept; it implies as well that the material cause already possesses, in its own right, certain attributes that are required to produce a complete substance" (Byrne 2001: 102). The material cause possesses the potentiality to be a substance of a certain kind only if it already possesses certain features that makes it suitable for receiving a certain form. If we cannot make a sword out of wool, it is because wool already possesses a form. There is something about the nature of wool that prevents it from becoming a blade. In this instance, the notion of "form" cannot just refer to a geometric shape. The conflict is between two already informed hylomorphic substances rather than simply between some abstract form and matter. The potency of matter in a hylomorphic compound refers to its capacity to accept or reject a formal cause. This is possible only if matter already has a certain determinate nature (thus is already informed qua proximate matter).

For a compound to count as a true unity (for instance, for the matter "clay" and the form "pitcher" to coalesce into *one* genuine object), the form must be the telos of matter.

Thus, a hypothetical necessity between material and formal causes rules the generative process (*if* a sword, then bronze or iron but not wool, *if* a garment, then wool, or linen but not clay). Hylomorphism is dynamic and genetic: it provides an account of the coming to be of entities. Teleology is at work in hylomorphism; as Sentesy observes, "it explains how material and form (i.e., parts and whole) can be unified; *telos* explains how hylomorphic compounds can be at all" (Sentesy 2016: 111).

So long as matter has some determinate characteristics (as is the case in hylomorphic entities) its capacity expresses a certain desire to obtain completion; it is a (feminine) longing for the (masculine) form that would complete it. Matter desires form "it is the matter that does the yearning, like the female desires the male and the ugly desires the beautiful" (*Ph*. I 9, 192a24). Proximate matter, insofar as it has a determinate character, is naturally oriented toward the final and formal causes. As Morel observes: "We now understand better that matter can be called the *ousia* of a determinate thing: it is not itself a substance, but it is one *in re* with the form in the constitution of a composite substance" (Morel 2016:168). From an explanatory standpoint (and by contrast with the ancient pluralists and atomists), the matter that contributes to a causal account and must be mentioned in a complete definition is the most appropriate matter and to be appropriate entails that it is already informed. Thus, matter cannot be *ousia* in the proper sense (otherwise, it would be the substance of a substance composed of matter and form); yet it is not fully excluded from substantiality either.

It is tempting to see in *Metaphysics* Z 3, 1029a20–23 Aristotle's "more developed definition of matter."[4]

> By matter, I mean that which is in its own right neither a specific thing nor any other specific predicate by which being is determined. For there exists something of which each of these is predicated, the being of which is different from each of its predicates.

Yet, is this a definition? The definition of a term is supposed to delineate what a thing is while this only tells us what it is not. Matter as such has no definition because it has no essence. To understand matter, we must ask not for its definition but for its function. The method of analysis, which is indispensable when approaching the concept of matter, is further pursued in *Metaphysics* Z 3 with a thought experiment that I shall refer to as the method of stripping away.

> It has now been said in outline what substance is, namely what is not said of an underlying substratum but of which the other things are said. But we should not say only this, since it is not enough. For it itself is unclear, and furthermore, matter becomes substance. For if this is not substance, what else it is escapes us. For when the other are stripped away, we do not see anything remaining. For whereas the other are affections (*pathē*), products (*poiēmata*), capac-

[4] This is, for instance, how Jerry Green reads it (Green 2014: 328).

> ities (*dunameis*) – length, breadth and depth are quantities and not substances (for quantity is not substance). But when length, breadth and depth are stripped away, we see nothing left, unless it be something that is determined by these, so that the matter alone must appear to be substance for those who investigate in this way (Arist. *Metaph.* VII 3, 1029a7–18).

It is first to be noted that in the stripping away argument of Z 3 even *dunamis* is removed. When the properties of a material object are stripped away, we should be left with the object itself. In that case, there is a parallel between matter understood as substratum in the grammatical sense of the term (i.e., what is subject of predication) and the ontological sense (what underlies by receiving properties).[5] The only thing that remains when we strip away the predicates from the object is whatever is determined by them, and this would be matter.

The target of Z 3 is not so much the claim that matter is substance, but the claim that substances are primary substrata. The substratum is understood here in terms of what Jerry Green calls "asymmetrical predication" (i.e., being subject of predicates but not being predicate of anything else) (Green 2014: 325). The asymmetrical predication argument leads (erroneously) to the claim that matter is substance. Thus, in Z 3 Aristotle rejects the idea that asymmetrical predication (the logical sense of *hupokeimenon*) is sufficient to claim that substances underlie.

There are three conditions for substance: (1) It must be a *separate* thing; (2) It must be a "*this*"; (3) It must have *priority*. But matter is neither separable nor a *this* and it cannot be prior to form since actuality has ontological priority over potentiality. The stripping away argument fails to meet the criteria for substantiality. Matter cannot be substance if substance is subject (*hupokeimenon*). The dependency of matter on form explains why matter fails the separateness criterion. But what does "separate" (*chōriston*) mean when it is attributed to form? How could a form be separable from the very matter it informs?

Chen argues that *chōrismos* means separability from the secondary categories which the concrete individual substance possesses by virtue of its form. It is impossible to talk of secondary categories (for instance, a quality or a quantity) without assuming substance (a quality or a quantity can only be *of* a substance) so we have a case of definition by addition (as in snub nose, for instance) (Chen: 1957: 56). When a substance is defined, no secondary category should enter in the definition. A definition corresponds to an essence; it is an essence put into words. The separability of the concrete thing consists in its persistence amid the changes of its accidental attributes. The subsistence of the concrete individual substance is due to the fact that its accidental attributes contribute nothing to its essence.

As for matter, it has no separate existence – its existence cannot be independent of the existence of anything else. The stripping away argument works only for what Lewis calls

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[5] This is of course to be taken as a *parallel*. Aristotle's term *hupokeimenon* is ambiguous and I do not mean to identify the two senses.

the "received criterion" of *hupokeimenon* as subject of predication (Lewis 2013: 63). Yet, Aristotle distinguishes two senses: "things underlie in two ways, either by being a *this* (as an animal is to its attributes), or as matter to actuality" (VII 13, 1038b6). For the stripping away argument to function, the relation between the substratum and its predicates must be accidental.

II. Beyond the Elemental

If we must start with hylomorphism, it does not follow that the analysis must remain at this level. The material component of a sensible substance can again be analyzed further down in terms of the same duality. If bricks are the matter of the house, they can themselves be analyzed in terms of their matter (clay, sand or lime) and in terms of their form (here in the sense of shape, namely, a rectangular cuboid). Again, clay can be understood as a certain ratio ("form" then takes the sense of proportion) of minerals and plant detritus. If we continue the analysis, we encounter the elements. According to Empedocles, the things we encounter in the sublunary world are made up of different ratios of earth, water, fire, and air.[6] If we continue further toward the bottom of it all lurks *prōtē hulē* or prime matter.

The Aristotelian account of matter is hierarchical: we start from the material substratum of a particular substance, then we consider its recognizable elements (for instance the construction material used to build a house or the organs of an animal), then further down to their determinate generic components (wood and bricks, flesh and bones), then further to elemental matter. How much further can we go? One could be tempted to opt for pluralism and assume, with Empedocles, a limited number of indestructible "roots" whose association (*philia*) and separation (*neikos*) give rise to all things. An element is a primary constituent into which a body is divided. But it is to be noted that Aristotle talks of "*so-called* elements (*ta legomena stoikeia* or *ta kaloumena stoikeia*)" (Arist. *Ph.* III 4, 203a17), the phrase also appears three times in *De generatione et corruptione* II 1.

[6] The case of the fifth element, ether, raises difficulties that I cannot go into here. Alexander of Aphrodisias posits a cosmological material duality: celestial bodies do not have the same matter as corruptible bodies for their materiality is without potency. This would suggest then that ether is not itself further analyzable to some ultimate matter because the celestial bodies, while corporeal, escape generation and destruction. "It is clear that the matter which is the substrate of the things subject to coming-to-be and passing-away will be different from that which is the substrate of the divine [celestial spheres]." Alex.Aphr. *Qaest.* 1.15, 27, 2–4, 60. See Lavaud 2008: 399–414.

This does not cast doubt on their being *elemental*, as Crowley has argued, but it does not follow that they are *ultimate*.[7]

The elements are themselves bodies and are often mentioned by Aristotle as examples of substances. They possess one of each of the two fundamental pairs of opposites, hot/cold and wet/dry and they can change into one another.

> The elements therefore cannot be generated from something incorporeal nor from a body which is not an element, and the only remaining alternative is that they are generated from one another (Arist. *Cael.* III 6, 305a31–34).

In evaporation, for instance, water (wet and cold) turns into air (wet and hot) but this could not happen unless there is again some further substratum underlying the process. The coldness of water is replaced by the hotness of air while wetness remains. However, a change in tangible quality is an instance of *alteration*, not of *generation*. Something else must persist through the change that occurs when the property "cold" is replaced by the property "hot." What underlies elemental change cannot be any of the elements, since it must be capable of possessing the characteristics of each of them successively. This is prime matter, the ultimate constituent of everything.

The ontological question this raises is thus: can we say of such a thing (which is not even a thing) that, nevertheless, it *is*?[8] Does not this clash with the ontological privilege Aristotle grants to substance, actuality, and form which are the best candidates to answer the basic question "*ti esti;*" (what is it)? After all, there is no prime matter *in itself* since to be "*kath' hauto*" is to have substantial reality and to have substantial reality is to have a form. To be, in its primary sense, is to be "this something" "a this" ("*tode ti*"). This house, this tree, this horse, etc. are instances of primary substances. But matter, considered independently from form, can neither be a this nor anything separate. The impossible separation of matter and form leads us to admit that we cannot grasp matter by itself but, at best, only by analogy.

In *De generatione et coruptione* II 1, Aristotle sides with the philosophers who talk of a "matter of the perceptible bodies" (*hulen tōn somatōn tōn aisthetōn* – Arist. *GC* II

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[7] Timothy Crowley argues against the view according to which "fire, air, water, and earth are not elements strictly speaking, because they reveal under analysis, further, more fundamental, that is more *elemental*, items." (Crowley 2008: 225). I agree that there is nothing more elemental than the elements, but it does not follow that what is elemental is ultimate.

[8] In his recent translation of *De generatione et corruptione* into French Marwan Rashed rejects prime matter on the ground that a difficult sentence at *GC* I 3, 319b3 ("*ho men gar pote on hupokeitai to auto, to d'einai ou to auto*") would conceal Aristotle's pronouncement against prime matter. The sentence is typically translated as "for the substratum, whatever it may be, is the same, but the being is not the same" (Williams). Rashed proposes to read "*ho pote on*" as having a temporal sense ("at any point of time"). Suppose that at t1 we have fire and at t2 we have earth; we should then understand "what matter is [at t1 and at t2], as it serves as substratum [pivot of] change is the same thing (*to auto*): namely dry." (Rashed 2020: xcv). The problem however is that this reading works for *one* instance of elemental transformation (from fire to earth, "dry" is the constant that remains). But how can we account for the whole cycle when at some point air (wet and hot) will end up as earth (dry and cold) and no quality remains?

1, 329a25) but their mistake is to posit a separate material principle. Aristotle argues on the contrary that matter is inseparable. This raises a puzzle: on the one hand, qua cause (*aitia*), matter belongs, at least in part, to any explanatory account of substances. On the other hand, as Richard Lee observes, "whenever we turn our thoughts to matter, what emerges is not matter in its materiality, but a form" (Lee Jr. 2016: 24). The difficulty we are confronting fall under three main headings:

1. Matter cannot be encountered directly. It is always a component of a substance that forms a unitary hylomorphic whole. In other words, it is always informed and it is understood only indirectly by analogy (the wood is to the table what the metal is to the dagger and what the flesh is to the animal). But analogical thinking betrays our ignorance. None of these terms is known by itself since what is properly knowable of a substance is its form insofar as it informs some determinate matter (e.g., a snub nose), matter *by itself* (i.e., independent of form) is unknowable.

2. Prime matter is the material of the elements – air, water, earth, fire- but it is not itself made of any further matter. The word "prime" (*prōtē*) in the expression "prime matter" means that it is *ultimate* or *primordial*. Since the issue occurred out of the consideration of an analysis of hylomorphic substances, prime matter seems to function as a device contrived to halt infinite regress. In other words, it seems to have a role in the argument, but no place in ontology.

3. To the four sublunary elements are attached four primary qualities (hot/cold, wet/dry) but prime matter, the matter *of* the elements must itself be neutral. In order to be the matter of water as well as fire, earth, and air it must be neither wet nor dry, neither hot nor cold. Just as the rejection of bare particulars leads to the rejection of the concept of substance (a mere "I-know-not-what"), the rejection of properties leads to denying a material substratum. Confronted by these difficulties, most commentators have opted for one of two options: either prime matter is ultimately incoherent or it is deemed salvageable if we find a way of reifying it.[9]

Let us consider the first option, which I will dub eliminativism, the suspicion that the notion of prime matter is incoherent. Gill rejects prime matter and considers that "the four elements – earth, water, air, and fire – are the ultimate subjects in Aristotle's system of the sublunary world" (Gill 1989: 40). On this, she follows Charlton who argues that there is nothing more basic than the elements and that they change into one another without there being anything that remains (Charlton 1983: 197–211). Some have even suggested that Aristotle was not truly committed to prime matter or that he didn't even have such a concept.[10] According to Graham, prime matter commits Aristotle to creation *ex nihilo* (even though Aristotle explicitly shares the Eleatic abhorrence for this idea).

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[9] Of course, other interpretations have been suggested and I will mention some of them. However, these seem to be the two dominant ones at this point and I will focus on them in this paper.

[10] According to Beere, for instance, the elements are the lowest level. Beere interprets prime matter as a kind of undifferentiated universal stuff (not *this* fire, but fire in general) (Beere 2006: 324)

> Aristotle identifies pure indeterminacy with the concept of nothingness of the Presocratic (specifically Eleatic) tradition (...) How then can Aristotle escape the charge that his elements are created out of nothing? For it appears that something which Aristotle posits as underlying elemental change is really no thing at all (Graham 1987a: 477).

There is, however, no reason to assume that indeterminacy is tantamount to non-being or pure nothingness and indeed, the same paper has a more nuanced conclusion:

> As one approaches the limits of being in descending through the chain of being to simple substance, the substances become more real or at least no less real as subjects; at the same time, they become less real as determinate particulars. At the point where one meets prime matter the divergence has become complete. Prime matter is both an ultimately real substratum and an ultimately unreal particular (Graham 1987a: 489).

To say that something is not a particular is not tantamount to saying that is it nothing. The science announced at the beginning of *Metaphysics* Gamma, first philosophy i.e., the science that seeks a theoretical grasp of being qua being, must also investigate *relative non-being*. Negation, privation, potency, and absence are not pure nothingness. "In the case of a privation, a certain nature is also involved that is the underlying subject of which it is said" (Arist. *Metaph*. III 2, 1004b15). Graham ascribes to Aristotle an ontology that recognizes only actual substances and their properties and reduces any other sense of being to pure nothingness.

Proponents of eliminativism focus in particular on *Generation and Corruption*. Charlton, for instance, consider the following claim: "It is better to make the matter for all *achōriston* as being one and the same" (Arist. *GA* I 320b12–14). How to translate *achōriston*? The meaning is clear: not parted, undivided. Charlton proposes "not separate from the thing which changes" which is to say that matter in a hylomorphic compound is not separate from the form (a correct Aristotelian claim, no doubt) and interprets "all" as referring to "all kinds of change" (Charlton 1983: 200). But this interpretation raises two problems: (1) *Achōriston* refers to matter itself, not to one component of a material substance and (2) it does nothing to account for the claim that it is "one and the same;" yet, the expression can only refer back to *hulē* in a sentence that does not mention different kinds of change.

In *De generatione et corruptione* I 3 the contrast is between two types of generation: coming-to-be *simpliciter* (*haplōs*)[11] or "properly speaking" (*kuriōs*) and coming to be "something from being something" (Arist. *GA* 317a34). In the first case, the continuant is imperceptible and the change occurs in the *intrinsic* features of the entity (the features that are responsible for *what* the material substance is as when blood comes from semen,

[11] "*Haplōs*" has also the connotation of "simply" and even "absolutely" when used as the opposite of *kata ti* (relatively).

air from water or water from air). In generation, the substratum itself does not remain the same. In the case of alteration, however, the continuant is perceptible and remains the same; alteration does not affect *what* the body is but *how* it is. For instance, when one recovers from an illness one comes to be healthy from being ill. If, in the first instance, coming-to-be *simpliciter* means emerging out of non-existence, then we would indeed be faced with the incoherence Graham denounces.[12]

"Matter in the strictest sense (*malista kuriōs*) is the substratum receptive of generation and destruction, but in a certain way, it is also the [substratum] for other changes, because all substrata are receptive of certain contrarieties" (Arist. *GA* I 4, 320a2–5). Commenting on this passage, Gill concludes that "the description itself is misleading. Aristotle's description of matter as "the *hupokeimenon* receptive of generation and destruction" seems, on its face, to characterize a subject that can come to be and pass away, and therefore a subject that is perishable" (Gill 1989: 61). The point of this argument is that the description of matter at *De generatione et corruptione* 320a2–5 is misleading *as a description of prime matter.* It is not matter qua substratum that perishes (since it is indestructible) but the *substance* as a whole (i.e., the composite of form and matter) that is generated and destroyed. Although it is true that a substance can also be considered the substratum of alteration, the concepts of *ousia* and *hupokeimenon* are not interchangeable. On this view, "matter in the strictest sense" refers to the four sublunary elements. This, however, is not a sufficient reason to dismiss the concept of prime matter.

David Charles, for his part, wishes to maintain the notion of prime matter but proposes to reconstrue it as a "logical object," something akin to Fine's arbitrary objects that serves as the denotation of the variables in the open sentences of quantifier logic. Prime matter is "that which receives genesis and destruction in material changes."[13] When water (wet and cold) turns into air (wet and hot), it retains the property wet and loses the property cold. Such a "logical" prime matter is not a true constituent of the elements. "The process of analysis Aristotle envisages is thus not a metaphysical one (...) but a *logical* analysis of striping away the categorial attributes of a substance until one arrives at what we may call the logical subject" (Graham 1987b: 224–225). This posits an analogy: the logical substratum is the limiting case of logical analysis just as prime matter is the limiting case of metaphysical analysis.[14] Such a "logical subject" may not have any ontological status. "If PM has no actual features of its own, that is, if for all feature *F*, PM is not-*F*, is not PM something like pure indeterminacy? And pure indeterminacy, *more than non-existence* is for Aristotle and his tradition (the Eleatic tradition) the paradigm case of nothingness."[15] Whether indeterminacy is "more than non-existence" nothingness will be tackled in section IV below. Another problem with this interpretation is that the

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[12] Gill supports this view: "The *hupokeimenon* for generation is not a continuant." (Gill 1989: 55)

[13] Charles 2004: 158. See also Lewis 2008: 130–131.

[14] Graham (1987b: 231) cautiously admits that "we cannot be sure on the basis of the limited evidence that Aristotle made such an analogy."

[15] Graham (1987b: 227) – my emphasis.

destruction of water is severed from the generation of air. In this case, an element has been *replaced* by another while Aristotle invites us to conceive of change as a continuous process rather than as a replacement; in motion, there is continuity and not sudden metamorphosis.[16]

Thus, it is not prime matter but elemental transformation without prime matter that introduces discontinuity and the emergence of something out of nothing.[17] If prime matter is the subject of predication or properties *and* prime matter is nothing, then we have returned to the Eleatic puzzle. But this would assume that "coming-to-be *simpliciter*" means coming-to-be "from non-being *simpliciter*" (i.e., from nothingness). In other words, the qualification "simpliciter" (*haplōs*) would change from qualifying something to qualifying nothing. In which case, generation would indeed be creation *ex nihilo*. The appeal to prime matter is precisely meant to prevent this consequence. Before the statue was carved, it simply was not (i.e., there was no statue) but this is not equivalent to saying "there was nothing" (otherwise, as Aristotle warns, "it would be true to say that there are things of which non-being can be predicated" – Arist. *GA* 317b3). Likewise, in elemental transformation, if we reject prime matter as *hupokeimenon*, the annihilation of an element would be replaced by the emergence of a new one out of nothing. This contradicts both Aristotle's views on the continuity of motion and time and his objection to the Megarians in *Metaphysics* Θ. It follows from this that "that-out-of-which" a substance comes-to-be is not itself *substantial*, but not (*pace* Graham) that it is nothing. Indeed, prime matter is "no thing" (i.e., it is not a determinate something) but it does not follow that it is mere nothingness.

On the opposite side of the debate, arguments for the coherence of the notion of prime matter seek some essential property that could apply to it and they typically appeal to extension (and with it to the capacity for motion and rest).[18] I shall dub this the extentionalist interpretation. Prime matter could not perform its role as constituent of bodies and substratum of elemental change unless it is extended. Byrne, for instance, writes:

> In fact, not only must prime matter be extended, movable matter, but, given that the five elements are made out of it and all other perceptible substances are made out of these five elements, prime matter is also responsible for the extension, mobility, and corporeal nature of all other perceptible substances by being itself extended, movable, and corporeal.[19]

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[16] This is particularly central to Aristotle's critique of the Megarians. See Massie 2016: 279–309.

[17] Charlton denies that there would be such a discontinuity "Aristotle wants to say that water passes away, not, indeed, into nothing, but into air; and air comes into being, not out of nothing, but out of water" (Charlton 1983: 210). But the problem remains: without the assumption of prime matter, there is a metamorphosis where one substance simply vanishes, and another one replaces it.

[18] Sokolowski 1970: 263–288; Cohen 1984: 171–194; Byrne 2001: 85–111.

[19] Byrne 2001: 101. As mentioned above it is not obvious that this can apply to the fifth element (*aether*) at least according to the testimony of Alexander of Aphrodisias.

Byrne is inviting us to imagine the extended prime matter as a finite but infinitely divisible three-dimensional magnitude that lacks any determinate visible or tangible qualities and thus is not essentially any particular kind of body. This would be a viable metaphysical concept and it would solve the question of Aristotle's commitment to prime matter.

The first difficulty with this line of thought is that attributing any essential property to prime matter (as the extentionalists do) is explicitly rejected by Aristotle:

> If, first, there is a single matter of all things, as, for instance, the void or the plenum or extension (*megethos*) or the triangles, either all things will move upward or all things will move downward, and the second motion will be abolished" (Arist. *Cael*. IV 5, 312b21–23).

Different elements have different properties that account for different motions (fire tends to move upward and earth downward) but prime matter cannot have any intrinsic property.

The second problem is that the attempt to save Aristotle from the accusation of incoherence is done by assuming a purely quantitative conception of space where bodies are modifications of an infinitely extended matter. As Krizan puts it: "The essential problem for the Extended Prime Matter Thesis, as an interpretation of Aristotle, is that it requires his commitment to *indeterminate* extension, which is at odds with the concept of extension found in Aristotle's physical works" (Krizan 2016: 528). Aristotle's own terms (*diastēma* and *megethos*) are often rendered as "extension" in English translations. Yet, they do not fit with the modern idea of indeterminate three-dimensionality. "The specific use of *diastēma* to signify extension suggests that extension is the *internal* interval of a magnitude, and hence, extension *belongs* to a magnitude"[20]. There is no extension beyond the magnitude of a body in which extension inheres.

Furthermore, extension is magnitude and magnitude is a quantity. However, when it comes to matter, we must consider that

> By matter, I mean that which, in itself, is not stated as being the substance of something, *nor a quantity*, nor any of the other senses of being. For there is something of which all these things are predicated, whose being is *other than that of each of the predicates; for all the others are predicates of a substance, while a substance is a predicate of matter*. Thus, this last is in itself neither a substance nor a quantity not any of the others [categories]; and it is not a negation of any of these for even a negation belongs to something accidentally" (Arist. *Metaph*. VII 3, 1029a20–25).

[20] Krizan 2016: 529. The term is used for all three dimensions. For instance, in *Physics* IV 2, 223a1 *diastēma* refers to the extension of a finite line.

If quantity is excluded, so is extension. There is no three-dimensional extension outside particular *actual* bodies but prime matter is potency and not actuality.

It is true that Aristotle does introduce the idea of an intelligible matter to account, in particular, for geometric beings. "Of matter though, there is some that is intelligible and some that is perceptible, and one part of the account is always of the matter and the other the actuality – for example, the circle is shape plus plane" (Arist. *Metaph*. VIII 6, 1045a34–35).[21] Intelligible matter is the matter of geometric objects and seems to be a sort of bare extension, the extension we must assume when we think of any geometric object. But, *pace* Byrne, it does not follow that Aristotle attributes to *perceptible* matter the bare extension of geometric space.[22] Material things' spatial existence is to be thought in terms of "place" and the "proper places" that belong to their elements rather than extension.

In short, the debate oscillates between two positions: either we attempt to save Aristotle by reifying matter and granting it some essential property (extentionalism) or we recognize that it is not some "thing" and conclude that it is nothing at all (eliminativism). The problem is that both positions assume substantialism and actualism as the only parameters of ontology and ignore that Aristotle's thought harbors the possibility of a non-substantialist alternative at the infra-level of potentiality.

Aristotle's universe contains, among other things, inert heaps and decaying stuff that are matter in a derivative sense (they were the material of past substances and could potentially become the material of future ones). These are by-products of the continuing upward struggle of all things towards complete realization or perfect activity that, in the sublunary world, always ends in loss (at least for individual substances). We call these "matter" because they are the elements into which things resolve when losing their forms, but this is a loose way of talking. Given the close connection between actuality and existence, prime matter cannot exist without some informed compound. Thus, prime matter is not separate or outside the things we commonly deal with. It is rather the potentiality that lurks at the bottom of all actual things.

If we declare that there is something that is more basic than all things, something that is not a thing and yet not merely nothing or that there is something more primitive than the elements themselves we encounter a difficulty. These claims raise an ontological question: in what sense can we say "*there is*" when we talk of prime matter? The expression "there is" is deictic. It points to... and to point to is to point to something substantial. Matter, however, does not have unity; it is not a "this" and as soon as some matter contributes to the emergence of a *tode ti*, it is not prime anymore but informed matter that has received a substantial form. Therefore, we should not even be allowed to say *there is* prime matter. Yet, a main reason why, despite these difficulties, eliminating it

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[21] Intelligible matter is also mentioned in *Metaph.* VII 10, 1036a9.

[22] "In general, though, we might raise a puzzle about what sort of science it does belong to to go through puzzles about the *matter* of the objects of mathematics. For it does not belong to natural science, because the entire work of the natural scientist is concerned with things that have within themselves a principle of movement and rest" – Arist. *Metaph.* X 1, 1059b14–17.

from Aristotle's ontology is not a suitable solution is that matter plays a crucial role in the account of change and transformation. Rejecting it would make change not only incomprehensible but impossible.

III. Matter and the Metaphysics of Change

Any account of change requires an appeal to matter. In any change a property is either gained or lost. Something then must subsist to receive or lose the property in question, and this, ultimately, is matter. "Nor is there a matter of everything, but only of such things of which there is coming-to-be and change into each other" (Arist. *Metaph*. VII 5, 1044b27–28). The emergence of the notion of matter in the context of a philosophical account of change performs a crucial function. In response to Parmenides' challenge, Aristotle must show that change does not interlace in some impossible manner being and non-being *simpliciter* (if non-being is not, how could anything be mixed with it?), but substantial being and potential matter (which is a *relative* non-being but not absolute nothingness). If form and matter can be distinguished, it is because the form or the hylomorphic compound as a whole is what is affected while the underlying substratum has its own peculiar persistence.[23] Everything that changes, changes through something, out of something, and into something, the last one being either a substance or a quality, a quantity or a place. Matter underlies the four cases as prime matter in the first case (simple genesis), as informed matter in the other three.[24] Since generation and corruption are everlasting (as the generation of something is always the perishing of something else), and since even the elements are not everlasting but come into being in some way (Arist. *GA* II 3) there is a need not only for a source of eternal motion (the motion of the sun along the ecliptic according to *De generatione et corruptione* II 11) but also for a receptacle that can guarantee this eternal cycle. If matter is eternal and the elements are destructible, to stop a the elemental level is to postulate that the elements emerge out of nothing.

As Fieremans has observed, the distinction between matter and substance (entities) is marked by the linguistic difference between mass nouns (earth, water, air, fire, flesh, bones, bronze, wood, stone...) that designate kinds of stuff and count nouns (horses, statues, houses...) that designate primary individual substances (Fieremans 2007: 21–49). Within the category of quantity, the distinction between matter and *ousia* has a correlate between continuous (as for instance geometric quantities, length, surface, volume) and discrete (arithmetic). This is why Aristotle observes that, when it comes to matter, ordinary language tends to replace nouns by an adjectival form. Aristotle even coins a neologism to designate what is said of a substance insofar as it has matter: "that-en"

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[23] Mark Sentesy goes as far as granting the underlying matter its "own persisting *identity*" (Sentesy 2020: 36 – emphasis added). To talk of identity is problematic, I think we should instead consider persistence without identity. See section IV below.

[24] See Chen 1957: 54.

(*ekeininos*) which stands to the pronoun "that" the way "wooden" function as a generic adjective for the noun "wood." The bed *is* not wood because only the form (bed), not the matter (wood), is the correct answer to the question "what is it?" To be a "bed" is not to be what a bed is made of. Rather, the bed is "wooden" just as the ring *is* not gold but "of gold" or "golden." This linguistic observation makes of the material aspect of a substance something that is akin to a quality since we turn a substantive into ad adjective. But since prime matter does not have any further underlying matter, it could not be called that-en. Language gives us a hint, but it does not follow from this that it is the sole basis of ontological multiplicity, for the distinction between form and underlying matter has its source in change.[25]

Change, *metabolē*, is an umbrella term that covers the cases of *kinēsis* (motion), *alloiōsis* (alteration, qualitative change), growth and diminution, *genesis* and *phthora* (coming-to-be or generation and destruction or passing-away).[26] Aristotle invites us to hear *metabolē* literally as a "turning from/to": "Every change is from something to something, as the name [*metabolē*] makes clear for after [*meta-*] something else shows that there is one thing before and another after" (Arist. *Ph.* V 1, 225a1–3). This definition stresses the fact that all changes presuppose a *source* from which they depart, and occur *between* (another sense of *meta-*) two terms. Matter is what needs to be posited to make sense of the transformational process. In other words, any "coming into" is a "coming from." This rules out an emergence out of nothing, a destination that would have no provenance. Thus, we need a third term, for something must underlie and persist in the process between provenance and destination.

There cannot be change without physical matter; yet matter itself cannot be a source of motion:

> If one were to say that matter generates by means of its movement, he would speak more in accordance with the facts of nature... However, these thinkers are also wrong for to be acted upon, that is to be moved, is characteristic of matter [*tēs men gar hulēs to paschein esti kai to kineisthai*], but to move, that is to act, is the function of another power (Arist. *GA* II 9, 335b24–31).

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[25] On this issue, I agree with Sentesy's claim: "It is not clear that form and underlying thing can be distinguished on the basis of language alone, because in speech predicate and subject are exchangeable [...] Change establishes the particularity of being which makes a distinction between subject and predicate possible in the first place" (Sentesy 2020: 35).

[26] In *Physics* III 1 Aristotle uses *kinēsis* in a broad sense that makes it akin to *metabolē*: "The being-complete of what is in potency, as such, is *kinēsis*" (*Ph.* III 1, 201a11) and he lists under it alteration, growth and diminution, generation and destruction, and locomotion. Later on, however, in *Physics* V 1 *kinēsis* is reserved to locomotion. This suggests a generic and a specific sense of *kinēsis*.

Matter is then receptivity, disposition or pre-disposition for the act of the form. We find in it features of submissiveness to and attraction for the form that are assumed to be feminine.[27] Now, since a) every change presupposes an underlying substratum (*hupokeimenon*) and b) since there are two kinds of changes for some are non-substantial (e.g., the green leaves turn yellow in the fall while birds fly south, an object increases or shrinks in size, Critias changes from being non-musical to being musical) – in which case the substratum is already a substance while other changes are substantial (an entity that did not exist a moment ago now exists and one that did exist for a while is now gone), what then could play the role of the underlying subject in the second case (substantial change)? It clearly cannot be the substance itself or there would be no coming-into-being. By contrast with alteration and locomotion, generation is not a mere modification of an already existing substance; it is the emergence of something new. Something that was not has entered existence. But how can there be generation of a substance if there is no generation *ex nihilo*?

Aristotle's response to this question is matter. If we didn't entertain matter as an underlying substratum, we would have to conclude that something is generated from nothing or that nothing, somehow, turns into something; this would be a violation of Parmenides' principle that Aristotle is not willing to commit.

> We ourselves agree with them [Eleatic thinkers] in holding that nothing can be said without qualification to come from what is not. But nevertheless, we maintain that a thing may come to be from what is not in a qualified sense, i.e., accidentally. For a thing comes to be from the privation, which, in its own nature, *is something which is not* (Arist. *Ph*. I 8, 191b13–16).

Generation is change from matter to substance and destruction is change from substance to matter. In either case, matter provides *persistence*; it remains the substratum that is not substantial and yet is not nothing. "In the case of privation, a certain nature is also involved that is the underlying substrate of which the privation is predicated" (Arist. *Metaph*. III 8, 1004a16). The substratum is *deprived*; privation is absence of a form in matter, the lack of a predicate is to say that it is relative non-being – a non-substance that is not nothing.

Yet a problem remains, for the matter we encounter in our ordinary dealing is always some kind of matter (wood, stone, iron, fabric, clay – matter ready for the reception of a form). This means that it is always determinate, it has a specific kind and can never exist separately from form. If generation is not creation *ex nihilo*, it seems to be rather a trans-formation. Even if we further analyze determinate matter (say bronze) we will find a certain combination of elements which, again, have a specific form. Is generation of elemental matter itself a kind of change?

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[27] For a discussion of the gendered over-determination of matter, see Trott (2019) – chapters 4 and 5 in particular. Bianchi (2014), and Deslauriers (1998: 138–167).

> For it is a puzzling question whether there is generation of a substance and a this rather than <merely> of a quality, or quantity or location (and the same applies to destruction). For if something is generated then clearly there will be something in potentiality but not an actual substance from which the generation will arise and into which the thing being destroyed must change (Arist. *GA* I 3, 317b21–26).

It is to be noted that in this passage the potentiality of matter is understood in relation to a "a substance and a this." The solution to this impasse is that the generation of a substance is the destruction of another and that the destruction of one substance is the generation of another. So, in the case of proximate matter, generation does not proceed from some preexisting pure potentiality but from the reserve of further potentialities that any actual being harbors. If to be in potency is to be oriented toward actualization, then the actual is ontologically prior to the potential because potentiality is for the sake of its end in actuality.

But while the potentiality of proximate matter (a block of marble for instance) is oriented toward some possible forms and excludes others, the potentiality of prime matter is potentiality *simpliciter*. One could ask if we shouldn't go even one step further and ask about the kind of change that would generate prime matter itself? Aristotle, of course, rejects this hypothesis; prime matter is ungenerated and imperishable. Since it is not itself a compound of form and matter it can neither be generated nor destroyed.

While many commentators focus on "coming-into-being" the case of destruction is particularly important for the account of prime matter.

> In one way too matter perishes and comes to be, an in another way it does not. For as *that in which*, it does intrinsically perish, since what perishes– the privation – is present in it; but as what is potentially, it does not intrinsically perish and is incapable of perishing and coming to be (Arist. *Ph*. I 9, 192a25–27).

Despite what is often assumed, potentiality does not always entail privation. The initial alternative (in one way matter perishes, in another it does not) refers to the two kinds of matter we have distinguished. Qua *proximate*, matter is perishable: wood rots or burns, iron rusts away, even rocks erode. Qua *ultimate* (prime), matter is what subsists. Thus, just as generation is not creation *ex nihilo*, destruction is not complete annihilation. As a commentator puts it "Prime matter is necessarily underlying substance [sic], substance necessarily underlying any generation and perishment, an endless, never-failing cause of endless, never-failing generation and perishment."[28] It is not just the eternal divine bodies of the celestial spheres but also the pure potentiality at the core of the material beings that populate the sublunar world that is eternal. This may seem surpris-

[28] Fieremans 2009: 28. Of course, the expression is rather misleading. Prime matter is ultimate substratum but not *substance* in the proper sense of the term.

ing, since eternal things (which, by definition, are ungenerated and imperishable) must exist in actuality and no eternal thing exists potentially insofar as it is eternal. Yet, this is an inevitable consequence since if one were to assume that prime matter is not eternal but must be capable of being created and destroyed, one would have to posit yet one more underlying substratum to make this generation and destruction possible.

> Things which contain matter cannot be eternal, that is, if that which is capable of not existing is not eternal, as we have had occasion to say elsewhere. Now if what we have just been saying – that no substance is eternal unless it is in actuality – is true universally, and the elements are the matter of substance, an eternal substance can have elements of which, as inherent in it, it consists (Arist. *Metaph.* XII 2, 1088b23–28).

This does not rule out materiality for the eternal celestial bodies, but rather matter insofar as it is a marker of potentiality; i.e., insofar as it is responsible for the fact that sublunary beings are capable of being as well as not being.

Surprisingly perhaps, the solution to what subsists at the lowest level of the chain of being is similar to what can be found at its zenith. Everything that moves is moved by another but the process cannot be pursued to infinity. At the summit of the pyramid of beings, we need to posit a prime mover that moves without being moved and is pure actuality and activity. At its base, we must posit prime matter as pure potentiality. Yet, the parallel does not mean that either extreme (the base and the summit) exist separately. The prime mover could not be in the absence of what is moved by it any more than prime matter can be independent from actual material substances.

IV. Potentiality and the Neuter

A proponent of prime matter could argue that Aristotle needs something like a pure potentiality because otherwise his theory would fail. This is true, but also insufficient. At best, we have here a motivation but not a justification. My contention is that Aristotle needs prime matter but that if we uphold this concept, we find ourselves in a situation that pushes Aristotelian metaphysics to its limits.

Whereas *Metaphysics Z* presented matter as substratum, *Metaphysics H* focuses on a crucial new determination by positing the equivalence of matter and potency, form and actuality. "By matter I mean that which, while not being a this in actuality is a this in potency" (Arist. *Metaph.* VIII 1, 1042a26). "Matter and form are one and the same thing, one in potency, the other in act" (Arist. *Metaph.* VIII 6, 1054b18). While in *Z* 3 Aristotle was working from the assumption that the *hupokeimenon* is sufficiently captured by the

criterion of asymmetrical predication, it is now understood in terms of the criteria for substantiality that the *hupokeimenon* lacks; namely separability and thisness.[29]

To state that a thing is not identical to its length, breadth, or depth is not conceptually difficult, of course, but this gives us a purely logical conception of *possibility* governed by the principle of non-contradiction that is not sufficient to grasp the *potentiality* of matter. Matter is nothing, in the sense of "not a thing" not in the sense of nothingness. In its proximate form is a determinate nothing i.e., the potentiality of a material to form some concrete substance. On the ground of the priority of actuality over potentiality, Aristotle still cannot accept matter as substance in the full sense of the term since it is not actually determined, yet, it cannot be eliminated since it is potentially a this.

Prime matter confronts us with the limit of intelligibility. On the one hand, material substances are indisputably substances; yet, as soon as we try to think their materiality, it recedes from thought. If we consider a statue, the first thing we know is its form while bronze is its matter; but if we wish to know bronze, we are once again considering a form (here in the sense of a ratio of approximately 88% copper and 12% tin); and if we consider the copper, the form is, say, earth and fire in yet another ratio, and if we talk about the earth, we again grasp cold and dry. Richard A. Lee puts the problem in the following terms:

> Aristotle seems to implicitly recognize a central feature of matter as matter: it is, simply, other than thought. Aristotle is forced to this position, it seems, by his acknowledgment that the conditions that allow something to be thinkable *both require and refuse matter*. In this way, Aristotle's path to matter brings to the fore the basic feature of matter: it is nonthought, its being is as an *other* to thought (Lee Jr. 2016: 27 – emphasis added).

What is intelligible is a form-in-matter. The examples from *technē* (building, sculpture, pottery) indicate the imposition of a form on an appropriate material. An idealist position that identifies what is and what is thinkable could, of course, resolve the question by simply eliminating matter and this is the danger the eliminative position risks, but Aristotle is not Berkeley. Materiality may escape thought yet, it is what thought must assume. The materiality of matter may be ultimately unthinkable but, it is a non-eliminable *tertium quid*. As Lewis puts it:

> Prime matter is the limiting case of the notion of matter, which applies throughout the sublunary sphere and is absent only outside the sublunary world altogether, in the case of the Unmoved Mover, which is itself the limiting case of the correlative notion of form (Lewis 2008: 127–128).

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[29] See Green 2014: 335.

Lewis assumes the following (unstated but implied) argument: if you accept the doctrine of the prime mover as pure form and actuality then, by virtue of symmetry, you must grant ontological status to prime matter as pure potentiality. The solution he offers, which he dubs "functional-property view," insists that what counts as prime matter is not any kind of stuff or structure at all – since by definition, it has no features of its own – but simply that it is the potentiality of receiving contraries in generation and destruction. "In this way, every amount of each of the four elements, earth, air, fire, water, has some amount of prime matter as a constituent" (Lewis 2008: 133–134). Prime matter survives through its various transformations and exhibits one and the same functional property throughout. Lewis's solution has the advantage of granting prime matter the potency for constituting any one of the elements upon the imposition of the appropriate contraries. It is then to *dunamis* that we need to turn our attention.

In the account of mixing in *De generatione et corruptione* I 10 and II 7–8, Aristotle insists that the elements that are the initial matter of a *mixis* are present potentially. It is so because, in principle, a process of mixture could be reversed (the bronze could be returned to its components of tin and copper; thus, tin and copper did not vanish in the production of bronze but are still present in it in potency). However, the case of mixture is not identical to elemental change. How could the elements be potentially in the *mixis* unless there is a more primordial ontological plane where even the elements are in potency? We cannot say what prime matter is but only what it is not. Prime matter is insubstantial, indeterminate, unpredictable, and ineffable. Neither the positing of something (whether a substance or the property of a substance) nor the negation of these; it is literally neutral (*nec... uter* – "neither of the two", "neither this nor that"). Something that is not a thing haunts reality.

This suggests that the being-potential of prime matter is quite different from the potentiality of proximate matter (wood, iron, flesh, bronze...). As Bianchi observes "As *hupokeimenon*, or substrate, *hulē* is thus not a determinate substance but rather an indeterminate, possibly abyssal, placeholder" (Bianchi 2018: 125). *Determinate* matter (wool, clay, iron, wood, or bronze) is characterized by a determinate lack and associated with the feminine. But the feminine is not pure passivity or, I should say, impassivity. Determinate matter (wood, bronze) exhibits a yearning for a form that complements it but not any kind of form would fulfil it. We cannot make a hammer head from paper or a garment from iron. We find here hypothetical necessity: *if* a hammer then iron or steel, *if* a garment, then wool, cotton or linen. The same applies for elemental matter – fire yearns for upward, earth for downward. Any privation is a yearning, but any yearning has a specific telos. On the plane of determinate or proximate matter (to use medieval terminology) the feminine/passive element is already oriented toward a specific masculine/active form. It seeks what can fulfil its specific lack and this is always a determinate form. In all this, the capacity to act upon another as an agent is never granted to the feminine matter even though the yearning has a specific orientation.

When we talk about prime matter, however, we must go beyond the duality of the active and the passive, the masculine and the feminine. The neuter refers to this third

gender, the neither... nor. The challenge is whether such a primordial space of neutrality is identical with pure nothingness (in which case, we would indeed have *creatio ex nihilo* and a violation of Parmenides' precept). Brown rightly suggests that "Aristotle's task (...) is to understand the actuality of disengagement," in effect, "to come to terms with an actuality that is not at work, a stillness, a silence, an inactivity that cannot be set down in terms of actuality, but for which an actuality of non-actuality must still be given" (Brown 2017: 199–214).

"The unlimited (*apeiron*) is the matter of the completeness that belongs to magnitude; it is what is potentially but not actually a whole (...) This is why the unlimited, insofar as it is such, is unknowable for the matter has no form." (Arist. *Ph*. III 6, 207a21–25). The location of indeterminacy in potentiality and not in actuality and form preserves the determinacy of what is actual. What exists in actuality is freed from any destabilizing indeterminacy. "It is that which exists potentially and not in actuality that is indeterminate" (Arist. *Metaph*. III 4, 1007b28). Thus, potentiality in the case of prime matter is not determined by limits. Indeed, it has no limits.

When a natural being develops from potency to actuality, its potentiality is not exhausted in the actualization. The actual being has not consumed up its potential; instead, the potential remains in the actual. For proximate matter to retain its plasticity and fluidity, it must still possess the potentiality of prime matter. In other words, to supplement Lewis's functional-property account, we need to add that prime matter is what accounts for the remaining indeterminacy in all forms and degrees of material reality.

This is where, pursuing this thought, we are taken beyond Aristotle's theory, even if we are using his own conceptual apparatus. Prime matter refers to the *apeiron* that lurks in natural substances by virtue of their materiality. Potentiality remains distinct from and exists in excess of actuality, even though it exists only in actual substances. It is a reserve of otherness and an openness to being other that any actual things harbor. Ontologically, prime matter indicates a certain leeway at the core of being. It is the indecision, the indeterminacy of potentiality insofar as the potentiality to be is also the potentiality not to be.

> Now all things that are generated, whether by nature or by art, have matter; for there is a *dunamis* for each of them *to be and also not to be*, and this *dunamis* is the matter of each (Arist. *Metaph*. VII 7, 1032a20–22).

As Gill puts it: "[prime] matter is bare in the sense that no actual categorial properties belong to it accidentally. Nonetheless, the matter is essentially characterized by its potential to possess those determinate features."[30] This indeterminate hovering between

[30] Gill 1989: 41. This, of course is a consequence that Gill does not accept.

being and not being renders matter responsible for the ineliminable dimension of the aleatory in the sublunary world.

Dunamis entails that the possible is not merely what is logically compatible (i.e., what can be thought without contradiction) but a reserve of indeterminacy that actual substances harbor. Metaphysically, *dunamis* comprises an ambivalence: on the one hand, it connotes a restraint, a reserve awaiting for an eventual future release that may or may not come; as such, it stands by in retreat of its exercise just as a sleeping person who is literate (in "first actuality" in the terminology of *De anima*) retains the ability to read and write. Such *dunamis* indicates the presence of the non-manifest. On the other hand, *dunamis* suggests almost the opposite: force and power. The Latin etymology of "virtuality" (which was used to translate *dunamis*), is telling. *Virtualitas* derives from *virtus* which is related to *vir* (male).[31] It expresses the force of the virile warrior and genitor which makes itself manifest in action when opposing an enemy. By contrast, the *dunamis* of prime matter is neutral and points to an ambivalence and indifference to the feminine and masculine realm.

Heidegger observes that Aristotle asks a central question in response to the Megarian challenge: "How 'is' a capacity thought of not only as potential but rather as actually present, although not being actualized?" (Heidegger 1995: 146). The answer is illustrated by Heidegger's example of a sprinter. A sprinter who has not yet begun to sprint embodies the presence of the potentiality to sprint in the stillness of kneeling prior to the start of a race. This stillness is significantly different from the peasant who kneels down before a crucifix, Heidegger claims, because the still, quietness of the sprinter embodies the "not-yet" of the event of sprinting in a way that is contextually different from the potentiality that is embodied in the peasant. As Brown observes: "The 'not-yet' of the crouched sprinter appears in the actuality of the before and after that surrounds the engagement and permeates the movement of the action. The stillness that forms conspicuously between the movement of action is not nothing at all, but the real determinate quality of potentiality when it is disengaged from actuality" (Brown 2017: 205). Thus, we are led to understand actuality as the movement of potentiality. Likewise, the "not yet" of potentiality indicates the play of the future and its contingency in the present. The future is already present in actuality, but only in the guise of potentiality. It is what could be and could not be.

V. Conclusion

Beyond the distinctions between active and passive, rational and irrational potentialities mentioned in *Metaphysics* Θ, there is a further ambivalence that is made manifest

[31] This, of course, is also visible in Greek. L.S.J. notes, among others, the following pre-philosophical senses of *dunamis*: power, might, bodily strength (Homer); authority (Aeschylus); military forces (Herodotus, Xenophon). In these instances, the term has a clearly masculine connotation.

when we consider the difference between proximate and prime matter. On the one hand, to be potentially something requires that the underlying subject be something actual and determinate. For an illiterate person to be potentially *grammatikos* entails that they must have some structural properties that make them apt to become *grammatikos* – a young child has such a potency, a rock does not. In that case, *dunamis* is a consequence of having some actual features (e.g., a brain capable of acquiring reading and writing). We could call potentialities of this type *dispositional properties* because they depend on underlying structural properties. This is a consequence of the priority of actuality over potentiality. "That for the sake of which a thing is, is its principle, and the becoming is for the sake of the end – and actuality is the end, and it is for the sake of this that the potency is acquired" (Arist. *Metaph*. IX, 1050a 8–10). The potential is potential relative to an actuality. Actuality is more primary than potentiality because potentiality is always for the sake of its end in actuality. A lump of bronze is potentially a statue insofar as it lacks the form of the statue but is nevertheless an appropriate material for its reception. To be in potency is to lack the form that will complete and achieve what a determinate matter is capable of achieving. The potentiality of proximate matter is always oriented toward some determinate form; construction materials are toward the house, wool toward coat, and clay toward a pitcher or a cup.

On the other hand, prime matter is *dunamis* in a different sense.[32] Appealing to a distinction between "not to be x" and "to be not-x" from *Prior Analytics*, Alexander of Aphrodisias observes that:

> It is not the same to say of it [matter] 'it is not, in its own nature, qualified" and "it is, in its own nature, not qualified;" for "it is, in its own nature, not qualified" is an assertion that is said to be "by transposition" and is equivalent to a privation, but "it is not, in its own nature, qualified" is a negation which does not have the same force as a privation and it is [the negation] that is true of matter (Alex.Aphr. *Qaest*. 2.7, 53, 8–14; transl. Sharples 1992: 103).

Thus, privation in the case of determinate matter retains a certain determinacy. There is no such thing as privation *simpliciter*. The language of privation still allows us to make positive assertions. In the case of prime matter, however, to say that it *is* "not-qualified" would still be a way of affirming something about its nature and to treat "being non-qualified" as an essential property. The negative formula, however, brings us closer to the materiality of prime matter. It follows from this argument that there may be one exception to the principle of the priority of actuality over potentiality; namely, prime matter, not because it is prior, but because it is posterior to no forms. But this opens the road to another metaphysics that is not Aristotelian anymore. There are conceptual possibili-

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[32] "One must recognize that if matter is potency – and the terms *hulē* and *dunamis* are almost interchangeable in Aristotle – it is potency in a restricted sense that does not carry the connotation of tendency that is habitually carried by this notion"; Leblond 2012: 408 – my translation.

ties within Aristotle's corpus that could deal with the problem of prime matter but they would entail a profound revision of Aristotelianism.

We can see this at play in the case of destruction. Aristotle himself and his subsequent commentators up to the current era tend to pay more attention to coming-into-being, the entering into presence of a substance, rather than to destruction. Yet, destruction (passing-away) ultimately calls for an ontology of the negative. By contrast with generation which, as we saw, calls for proximate matter's affinity for a form, destruction (passing-away), i.e., the privation of all form calls for another sense of matter (i.e., prime matter). It is so because destruction cannot be pure annihilation since prime matter is ungenerated, indestructible, and eternal (features that neither proximate matter nor the elements can have). Yet, something remains for prime matter has the capacity of becoming any of the four (sublunar) elements and, by combination, to be part of everything whatsoever. This is the power of negation. To say that prime matter is pure potentiality is to say that it is capable of taking any form. If it is to acknowledge the reality of destruction, the ontology of matter cannot limit itself to the consideration of well-formed hylomorphic substances and must make room for the play of the negative that, at the same time, makes excess possible.

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Aristotle's Metaphysics of Matter

The issue of prime matter divides Aristotle's modern commentators on two questions: a) whether Aristotle was truly committed to it b) whether the notion is even coherent. Those who declare prime matter incoherent do so on the ground that what is deprived of characteristics or properties is simply nothing. Those who try to salvage the notion claim that it must have some characteristics focus on extension. As it stands, the debate turns on the possibility or impossibility of *reifying* prime matter. If we can, then it can be a coherent ontological category; if we cannot, then it is incoherent. This paper proposes a different path: indeed, *prōtē hulē* cannot be reified, but this does not make it incoherent. This, however, invites us to pursue ontology beyond substantialism and essentialism and takes us to the limits of Aristotelianism.

KEYWORDS

Aristotle, Change, Hylomorphism, Matter, Potency, Prime Matter, Substance