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On Primary Matter & Causality: An Investigation into The Nature of Aristotelian Ontology

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Introduction

Aristotelian scholars are divided into two camps, each defined by their opposing and "extreme positions about Aristotelian matter."[1] In her account of the history of Aristotelian philosophy, Gill outlines the two interpretations of Aristotelian matter, writing, "At one extreme is the idea that matter is what it is independent of form. At the other extreme is the idea that matter is determined as what it is by the form of the object whose matter it is."[2] Should matter be defined as something which possesses its identity by itself or as something which can only have an identity when in relation to a form? This question becomes interesting when looking into Aristotle's account of change and Being in both *The Physics* and *The Metaphysics*, respectively. Throughout this paper I will show how Aristotle's Final Cause, presented alongside existent, actualized matter, takes ontological precedence and accounts for a comprehensive understanding of both matter and causality.

It is important to note that while other texts are important for defining matter, take for example his assertion in *The Categories* that "particular physical objects (e.g., a particular man or a particular horse)" are primary substances and are ultimately the "underlying subjects on which everything else depends on for its existence," I will be focusing primarily on the previously mentioned two works.[3] This decision is due to my interest in how change and Being interact with one another and what this means for positing an Aristotelian account of matter rather than its relation to a species or genus.

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[1] Mary Louise Gill*, Aristotle's Metaphysics Reconsidered: Journal of the History of Philosophy* 43, no. 3, (2005), 233.
[2] Ibid, 233.
[3] Ibid, 233.

In Book A of *The Metaphysics* Aristotle writes, "Evidently we have to acquire knowledge of the original causes (for we say we know each thing only when we think we recognize its first cause), and the causes are spoken of in four senses."[4] He goes on to list the four causes as; the source of change (*Efficient Cause)*, the blueprint for the change (*Formal Cause*), that for the sake of which something changes (*Final Cause)*, and most importantly for this investigation, that which receives the change (*Material Cause)*.[5] Echoing his assertion in *The Physics*, regarding his subject of inquiry, Aristotle writes, "When objects of an inquiry, in any department, have principles, causes, or elements, it is through acquaintance with these that knowledge and understanding is attained."[6] Aristotle asserts that we do not know a thing until we know what its primary causes or first principles are. As Bostock observes, as Aristotle proceeds through *The Physics* it becomes clear that, "the principles he is interested in are not so much the principles of natural objects but rather of natural processes or changes, and in particular generations."[7] Aristotle's account does not lose sight of his original desire to posit components of natural objects, as some may be inclined to think, due to his emphasis on defining change. Rather, his "account of the 'principles' of change is at the same time intended to reveal the 'principles' of the things that undergo change, fairly much in the sense of the ingredients they are composed of."[8] In *The Physics*, Aristotle defines these principles as privation, form, and the "underlying thing."[9]

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[4] WD Ross, *The Metaphysics*, 4.
[5] Ibid, 4.
[6] Hardie and Gaye, *The Physics*, 1.
[7] David Bostock, *Space, time, matter, and form: Essays on Aristotle's Physics*, (Oxford University Press on Demand, 2006), 1.
[8] Bostock, *Space, time, matter, and form*, 2. [9]
Hardie and Gaye, *The Physics*, 9.

Both logically consistent and fundamental to Aristotle's proposed account of what it means to truly know a thing, is his sublation of change and Being under the study of Being qua Being. Aristotle's focus on change seems dialectically influenced by his professor, Plato, and his disregard for the "material world" or the "world of flux" which, according to Plato, acted to impair our capacity for true understanding. That is, Plato's rejection of change inspired Aristotle's fascination with it. Further, Aristotle maintains his focus on change through a critique of previous philosophers, primarily found in *The Physics* concerning their fascination with believing that change is comprised solely of opposites.[9] While Aristotle does not negate that change comes from opposites, his contention is that limiting the study of Being to opposites tells us nothing about the "underlying thing" which undergoes the change.[11] Therefore, Aristotle can be said to alter Plato's assertion that "given that there are in fact things [in flux]," it must be equally true that "…there exist some things that are not in flux."[10] As such, Aristotle begins his inquiry with a "rejection of Platonic separation" and desires to see what remains the same, not when isolated from change, but despite undergoing it.

Over the course of this essay I will show the insufficiency of three arguments regarding prime matter. First, I reject the traditional prime matter theory through exposing its logical inconsistencies with causality. The traditional prime matter arguments violate Aristotle's ontological/causal hierarchy, prioritizing unrealized potentialities over actualized composites. Secondly, I will investigate the extended prime matter argument, which attempts to resolve the aforementioned causal contradictions. I argue that the basis through which they build their

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[9] Ibid, 4-5. [11]
Ibid, 6-7.
[10] Lynne Spellman, *Substance and separation in Aristotle*, (Cambridge University Press, 2002), 4.

argument, that if matter is infinite then infinity cannot be predicated of it, is flawed. Defenders of this argument commit the error of asserting infinity to be of the same nature as a composite. Rather, I argue that infinity is better understood as a process which reveals properties of composites. Thirdly, I will investigate viewing prime matter without extension and further, without it being a constituent of the elements. Supporters of this prime matter argument, which I term prime matter as a principle of change, fatally base their claims on the belief that Aristotle took the metaphysical stripping of substance to reveal prime matter as a principle of change, or as that which exists at the boundary where logical dialogue concerning the nature of being ceases.

Through this investigation, I will show that the above-mentioned understandings of prime matter serve only to reduce the principles of change to matter alone. Rather, I support the claim that Aristotle's thought experiment has been taken too literally by the promoters of the prime matter theories and that they have neglected the great influence that ontology has in Aristotle's philosophy. When one looks at Z.3 in a more metaphysical lighting, one through which actual beings are taken as ontologically prior to potential beings, one sees that prime matter is not only insufficient, but unnecessary in facilitating and explaining change. Instead, I believe that the final cause serves as a much better candidate for the position which other scholars have granted prime matter.

The Traditional Prime Matter Argument

When looking at the argument for the existence of a prime matter, what is really being presented is an argument for the ontological status of prime matter. Prime matter is both that which underlies the elements and that which facilitates change between opposites. The promoters of the prime matter argument treat elements as composites of prime matter and matter, with prime matter being the "underlying thing" and the matter the form.[11] This assertion is rooted in Robinson's belief that, "…prime matter is necessary in order to explain the structure of elements within a hylomorphic framework."[12] Larger and more complex composites, like trees or animals, can easily be broken down into a form and matter, yet the elements cannot be broken down as such. The elements then are dependent on prime matter in order to form a composite.[13] In asserting that prime matter is "bare 'stuff', lacking all positive determinations" one construes it as a viable candidate for being "the matter of the elements and that which makes elemental change possible."[14] The prime matter, being void of attributes, now becomes capable of remaining the same through change and being a constituent of the elements, allegedly fulfilling its two functions.

To acquire a form, a change must take place and, for this change to take place, Robinson asserts that there must exist some 'prime' or 'fundamental' thing that endures throughout. With prime matter as the "underlying thing," substance becomes that which is created out of the change that matter goes through, in acquiring a form. Since substance is in this case, "the product

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[11] Howard M. Robinson, "Prime Matter in Aristotle": Phronesis, (1974) 168.
[12] Mary Krizan, "Prime Matter Without Extension," Journal of the History of Philosophy 54, no. 4, (2016), 526.
[13] Ibid, 526.
[14] Robinson, "Prime Matter in Aristotle" 168.

of change," it cannot be what persists through it.[15] Prime matter is then "introduced as the persisting subject," and form is "the positive member of a pair of opposites."[18] Yet this argument rests on a purely potential prime matter which cannot be necessary to the formation of a composite, or ontologically prior to its formation, while, at the same time, retain its indeterminate, potential nature. As such, since prime matter lacks all determinate qualities and quantities, it consequentially lacks the ability to fulfill its functions. This opposition is supported by Krizan who writes that prime matter is, "vacuous at best and contradictory at worst, it seems unnecessary or impossible for it to function either as a constituent of elements or a substratum that underlies their changes."[16]

Robinson expands on the above-mentioned contradiction, that something which is actual depends on something which is potential, when he makes the distinction between prime matter and determinate matter. Prime matter, as stated, can exist as pure potential outside of basic elements. Determinate matter on the other hand, is matter which we can know through its possession of qualities i.e. being constituted in water or fire, or as some kind of composite described as having those same qualities. Further, it is generally accepted among scholars that ontological priority is awarded to that which is "actual," since, "potentiality is ontologically dependent on what exists actually" and "what exists actually is not ontologically dependent on what exists potentially."[17] If prime matter only exists in a state of potentiality, as Robinson has stated, then it could not possibly play any part in an element undergoing change, and thus cannot be known when separated from an element. As such, Robinson's only contribution to prime

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[15] Gill, *Aristotle's Metaphysics Reconsidered*, 234. [18]
Ibid, 234.
[16] Krizan, "Prime Matter Without Extension," 527.
[17] Witt, Charlotte. *Ways of being: Potentiality and actuality in aristotle's metaphysics*. Cornell University Press, 2018, 13.

matter is firstly, that it cannot be known when separate from a composite and secondly, it absorbs or takes on the characteristics of the larger composite once it acquires a form. Aristotle states in the opening lines of *The Physics* that, "Now what is to us plain and obvious at first is rather confused masses, the elements and principles of which become known to us later by analysis. Thus we must advance from generalities to particulars; for it is a whole that is best known to sense-perception, and a generality is a kind of whole, comprehending many things within it, like parts."[18] Aristotle holds throughout all of his works that we must start with what we know and only then can we begin to posit logical connections based on that knowledge.

Further confusion ensues in Robinson's understanding of Aristotle's ontological hierarchy. In making a distinction between change, when a substance has already been created or is non-substantial, and, change when a new substance is being created among solely material objects, Robinson stumbles into a further problem. He asserts that if a substance is already "made," for example an iron statue, then the composite is a part of the whole which precedes the change and a part of the whole which proceeds from it.[19] But this is only true if the substance has already been created, is non-substantial, or existed prior to a change. For example, in the case of the iron statue, the change in color from grey to brown. Since nothing is generated or destroyed, substance, or the numerically whole composite, persists through this change in the iron's color. Rather, prime matter becomes the underlying thing when something new is made and when the change is purely elemental. Robinson writes, "When the change involves the forming of a new substance from an old one, then the matter of the change is that which constitutes first the one

[18] Hardie and Gaye, *The Physics*, 1.
[19] Robinson, "Prime Matter in Aristotle," 168.

substance then the other: thus if I turn an iron statue into cannonballs the iron is what underlies this change***."***[20]

I argue that Robinson's understanding of the ontological relationship between matter and form is fundamentally mistaken. An iron statue and a cannonball are both substances insofar as they are the actualized unifications of matter and form. The composite of matter and form, in being completely unified, does not have the ability to be other than that particular unified composite i.e. an apple cannot be conflated with any other composite either substantively, or linguistically. Contrastingly, matter without form, is not tied down to a particular, actualized composite and as such, is capable of taking on an infinite number of forms. As such, Aristotle would argue that matter, after receiving a form, does not stay the same or retain an identity, rather it receives qualities from a form through which a unity, of form and matter, creates both finite qualities and identity. Therefore, in the above example, of comparing an iron statute and an iron cannonball, the two objects would possess different characteristics and, of course identities, based upon their unique unity of form and matter. It becomes impossible, both conceptually and linguistically, for these two unities to be understood as being the same iron, since the form of which they are the iron, differs, and therefore the sensible qualities which they reflect also differ.

This notion is evidenced in one of Aristotle's many dialectic oppositions against those who posit matter as the *arche*, or first principle. In *The Metaphysics* he states that matter is not linguistically preserved in the new composite, writing, "Here, the statue is not said to be wood but is said by a verbal change to be wooden, not brass but brazen, not gold but golden, and the house is said to be not bricks but bricken."[21] The bricks which are used to construct a house are

[20] Ibid, 168.

[21] WD Ross, *The Metaphysics*, 68.

not linguistically the same bricks which make up the house. Rather, they take on the attributes of the form which they are given, hence the change from "brick" to "bricken" once the form of "house" was supplied. Robinson fails to recognize his own dialectic failure when he changes "iron statue" to "cannonball", linguistically omitting the iron altogether. Therefore, because of this linguistic and conceptual shift in the identity of the iron, we can infer that the iron in the cannonball is not the same iron that previously made up the statue.

Robinson goes on to reference *The Metaphysics* to further his assertion that prime matter can remain the same and simultaneously preserve the lack of the new form. Aristotle writes:

> But clearly matter also is substance; for in all the opposite changes that occur there is something which underlies the changes, e.g. in respect of place that which is now here and again elsewhere, and in respect of increase that which is now of one size and again less or greater, and in respect of alteration that which is now healthy and again diseased; and similarly in respect of substance there is something that is now being generated and again being destroyed, and now underlies the process as a 'this' and again underlies it in respect of a privation of positive character.[22]

If prime matter is unperceivable and possesses no qualities, then positing that this passage supports the existence of prime matter results in the same contradiction above. For example, if prime matter is indeed unperceivable and, without qualities, how can it logically underlie any element and still be "the lack of that thing" if it cannot be known until it becomes actualized through the reception of a form, from an efficient cause, that substantiates it, as Robinson asserts? Aristotle is discussing the alterations which a substance undergoes, and how all

[22] Ibid, 80.

alterations happen in relation to something more primary, such as a substance, rather than simply the matter out of which they are composed. For example, when a thing is said to grow taller or smaller, that attribute is only ever spoken of in reference to the substance as a numerical whole, or the composite of matter and form, and not a single material aspect of the composite. To reiterate, one says, "the apple tree grew taller" not, "the wood material out of which the branches are composed has grown taller." Aristotle is continuing to make it clear that his inquiry is not into either the mere qualities of a substance, or, in fact, prime matter as such. Robinson, seemingly ignoring Aristotle's message, would respond by asserting that prime matter cannot be an individually knowable thing, since it is that which change requires yet, it is inseparable from the elements and is responsible for keeping them the same matter as they undergo change.[23] In other words, those who reject prime matter must come up with another way to unite the composite of elemental matter.[24] By arguing for prime matter as such, Robinson reduces matter to its elemental state, believing that all matter refers back to a singular prime matter in order to undergo change. But prime matter is simply not strong enough to persist through the change from elemental matter to matter in a composite.[25] Prime matter then is insufficient in describing or facilitating change, and therefore we must undertake Robinson's challenge of finding something which can withstand these tasks and exist logically within an Aristotelian world.

[23] Robinson, "Prime Matter in Aristotle," 169.
[24] Ibid, 169.
[25] Krizan, "Prime Matter Without Extension," 525.

The Extended Prime Matter Argument

As such, positing something along the lines of Robinson's prime matter, offsets the ontological hierarchy upon which Aristotle relies. In attempts to fix the issues that arise out of an inquiry into the unknowable and unperceivable, since we are in fact discussing something we can neither know nor apprehend, certain scholars assert that prime matter does in fact possess a certain quality, i.e. extension.[26] This appeal to extension is meant to lessen the ontological necessity of prime matter that comes with its inability to persevere through infinite changes. Defenders of the extended prime matter argument, in attempting to reconcile matter and extension, suggest that "prime matter is not a 'something I know not what' because it is essentially extended, and it is not contradictory because it possesses one positive feature [extension]."[30] Proponents of the extended prime matter argument assert that matter shares a nature with infinity, as does extension, yet, upon logical extrapolation, matter and extension then become synonymous. Matter and extension then become two objects that, in sharing a nature of infinity, both become infinite themselves. Extended prime matter, as such, becomes that which allows the formation of a composite, or that which is a logically numerical whole. Further, in asserting extension as something infinite and synonymous with matter, the extended prime matter becomes that which has infinite qualities and persists through all changes a substance may undergo. In order to disprove this claim, alternative definitions of infinity and extension which align more closely with Aristotle's ontological hierarchy must be asserted to maintain any kind of internal and logical consistency.

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[26] Ibid, 526. [30]
Ibid, 526.

First, I am going to deal with a contradiction presented by the promoters of the extended prime matter argument. They state that one cannot argue that infinity is both essential to and predicated of matter.[27] If one asserts that Aristotle made matter infinite out of necessity, due to his desire to avoid asserting that nothing can come from nothing, it cannot be predicated of matter because matter would be incapable of surviving without it.[28] Now, many scholars read Aristotle's claim that nothing can come from nothing as meaning that infinity is necessarily of the same nature as matter. But, when we look at Aristotle's commentary on past philosophers, he critiques them for making infinity that which contains and not that which is contained.[29] The notion of infinity had already been long contested, but it existed in a very non-Aristotelian way. Aristotle, as we have previously stated, believed numerically whole composites to be the starting point of inquiry, since they are most knowable. If infinity exists outside of a composite it will continue to grow to a size vastly larger than the universe, and this is both unconceivable and frightening to Aristotle as he wants the sensible world to be knowable. There are then two ways in which infinity can logically exist within the Aristotelian world. Either as a substance, or as that which is contained in a substance. I argue that, in Aristotle containing infinity within substance(s), he shows that the only necessary aspect of infinity is its placement within the sensible world, or more specifically, its placement within his ontological hierarchy.

We see Aristotle inquire into the nature of infinity by putting it in relation to substance in *The Physics*. The ambiguity of the below quote lies in whether Aristotle means to posit infinity as an attribute of matter or if he believes infinity to be matter itself. He writes, "Therefore, the

[27] Matthew A. Small, "Matter, Extension, and Intellect in Aristotle," (2012), 29.
[28] Ibid, 29.
[29] Hardie and Gaye, *The Physics*, 33.

infinite must be without parts and indivisible… Suppose then that infinity belongs to substance as an attribute. But, if so, it cannot, as we have said, be described as a principle, but rather that of which it is an attribute – the air or the even number."[30] The first important assertion from this quote, besides the fact that he chooses to not have infinity as a substance, is that infinity is not to be described as a principle. Rather it is best to describe infinity as, "that of which it is an attribute," or, in other words, insofar as infinity can logically be a part of a particular attribute. As such, when infinity is described as 'the body of matter in which it is in relation to', the promoters of prime matter arguments, such as Robinson, seem to confuse infinity for prime matter. Prime matter is an indivisible, body-less thing which we only know when it is a part of a composite which makes up matter. Further, prime matter only gains characteristics when occupying a part of a composite and, therefore, can only be described as the qualities which that element possesses. The extended prime matter promoters seem to have realized this and, instead of positing a new term for infinity, simply say that it is of the same nature as matter. This assertion gives way to infinity as a per se accident or affection.[31] Bowin describes this interpretation of infinity when he writes:

> The concept of a per se accident or affection is introduced in *The Metaphysics*. Aristotle writes, 'what attaches to each thing per se but is not in its substance, as having its angles equal to two right angles attaches to a triangle.' A triangle is presumably defined as 'a three-angled figure,' and this is its essence. But certain other properties not in the definition of a triangle may be deduced from this, which hold eternally and necessarily,

[30] Ibid, 28.

[31] John Bowin, "Aristotelian Infinity,": *Oxford Studies in Ancient Philosophy* 32, (2007), 248. [36] Ibid, 248.

> e.g. that its angles sum to two right angles, and these properties are per se accidents or affections.[36]

From this definition, infinity becomes that which allows us to derive specific characteristics from a substance that are particular to that individual substance. Aristotle provides an example by analogy when he states that "speech is incidentally invisible."[32] The invisible is not an element of speech insofar as, when we define speech, we use invisible in its definition. Yet speech is, in fact, invisible and necessarily invisible because if it lacked this trait then it would no longer be speech.[33] These examples allow for Aristotle to define infinity as a process, specifically a process which involves dividing composites. This process of division allows for the emergence of new properties within full composites and allows for them to logically remain numerically one by now possessing the capability to encapsulate all qualities which could potentially be derived from them. In other words, what follows from this process of division, is the emergence of distinct and separate characteristics which become added as properties to the overall composite.[34] This allows for the composite to remain whole because, not only do these new properties get added to the composite, they all exist as potential within it.[35] We see this in the above quote when Aristotle states that the infinite is without parts and indivisible. The infinite is untraversable, meaning that we cannot perceive it with our senses and can never actualize it. It is often described as a "goal-less process," since of course it can never be reached.[36] Bowin writes, "He [Aristotle] speaks of 'dividing ad infinitum,' which with the

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[32] Ibid, 249.
[33] Ibid, 249.
[34] Ibid, 242.
[35] Ibid, 242.
[36] Ibid, 247. [42]
Ibid, 238.

accusative implies a movement towards but not an arrival at infinity."[42] Therefore, there seems to be an aspect of dialectical reciprocity in the relationship between infinity and matter, since neither can gain any characteristics and therefore any kind of sensible identity within the material world without their being contained within a composite. So truly, the question concerns,

"competing accounts of infinity: one where infinity exists as a process, and one where it exists as matter."[37] To investigate further into these different approaches towards infinity and matter, we must first account for Aristotle's understanding of extension and magnitude.

Many scholars have taken the infinite process of division to mean that extension itself is also infinite. This statement has already been refuted by scholars such as Krizan. She argues that if extension is infinite, then the body, or magnitude, would also be infinite, and this is impossible because then it would be larger than the universe.[38] She writes, "Magnitude possesses the infinite in a different way: for each magnitude, there is a smaller magnitude. In contrast to number, magnitude cannot be infinitely large: if this were possible, then there could be a magnitude larger than the universe."[39] Magnitude becomes that which is finite and determinate in quantity and therefore must have boundaries which are determinate as well. She goes on to say that, while it is generally agreed upon that magnitude cannot grow infinitely in the direction of increase, one may suggest that it can be infinitely divided.[40] This objection is warranted on the grounds that Aristotle defines infinity as the infinite process of division and describes its essence as privation. Yet, infinity, by definition, is impossible to reach. If one hypothetically did reach infinity, it

[37] Ibid, 243.
[38] Krizan, "Prime Matter Without Extension," 533.
[39] Ibid, 533.
[40] Ibid, 533. [47]
Ibid, 533.

would result in "points that lack magnitude; since this would effectively destroy the magnitude, it follows that the actual infinite division of magnitude is impossible."[47] In other words, if infinite division is carried out to completion, it would become impossible for a product to be continuously produced and instead one would simply be destroying the composite itself instead of revealing its hidden properties. Rather, when asking us to imagine a substance void of attributes, Aristotle is only asking us to partake in a thought experiment which could never actually become reality.[41] Krizan concludes then that since magnitude is finite and determinate, then extension, being a "feature of a line, surface, or body" must also have a determinate measure.[42] Extension therefore is defined as an interval of magnitude, since extension belongs to magnitude.[43] For example, "without two pitches, there is not an interval, without a sphere, there is no radius, and without magnitude, there is no extension" or in other words, without boundaries there can be nothing extended within them.[44]

Both Krizan and Sokolowski, whose argument is described by Small, use a passage in *The Physics* to further both of their contradicting views. In short, Sokolowski desires to promote the extended prime matter argument as being Aristotle's true intentions. Aristotle writes:

> If, then, we look at the question in this way the place of a thing is its form. But, if we regard the place as the extension of the magnitude, it is the matter. For this is different from the magnitude: it is what is contained and defined by the form, as by a bounding

[41] Boris Hennig, "Matter in Z3,": Foundations of Science 13, no, 3-4, (2008), 199.
[42] Krizan, "Prime Matter Without Extension," 534.
[43] Ibid, 528.
[44] Ibid, 530.

> plane. Matter or the indeterminate is of this nature; when the boundary and attributes of a sphere are taken away, nothing but matter remains.[45]

Aristotle later concludes that place cannot be either form or matter.[53] For Krizan, this passage is evident of the above explained claim that extension is finite because what contains it is also finite. Yet, for Sokolowski, "Aristotle's conclusion as to which is the correct characterization of place is insignificant."[46] What is important is the assumptions from the above passage that he believes Aristotle makes. Small writes, "By saying that 'if place is a limit then it is form,' Aristotle has implied that form is identical with the limit of a body's magnitude, and by saying that 'if place is extension then it is matter,' he has implied that he views matter as being identical with extension."[47] Asserting that matter and extension are indistinguishable and therefore inseparable, proves very problematic when we look at other passages from *The Physics*.

The first major problem presented by Small of Sokolowski's claim is that Sokolowski seems to forget the numerous times Aristotle defines matter as being "divisible into a variety of distinct species."[48] If matter is nothing but extension, then all matter gets lumped together under one universal conception of matter, which Sokolowski calls common matter, and any kind of distinction between matter becomes impossible to make.[57] Yet, matter can only change into so many distinct species and kinds and therefore, cannot be of the same nature as infinity, which is indivisible and character-less. In positing the existence of a transcendent, infinitely extended prime matter, Sokolowski has then committed the same problem Robinson did in asserting that

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[45] Hardie and Gaye, *The Physics*, 35. [53]
Ibid, 36.
[46] Small, "Matter, Extension and Intellect in Aristotle," 33.
[47] Ibid, 33.
[48] Ibid, 34. [57]
Ibid, 34.

iron in a statue is linguistically the same iron once it has undergone change and becomes a cannonball. Aristotle notoriously states that matter which undergoes change is not linguistically the same matter which was initially used. In other words, both scholars believe all matter to share a general, transcendent commonalty by proxy of it being matter. Further, if matter is only extension, and therefore will always possess all kinds of qualities as infinite potentiality within, there would be no way to tell the difference between the various and diverse types of matter that exist within the sensible world. This conflated sense of matter results from the ability, given to it by promoters of the extended prime matter argument, to no longer need the characteristics of the form of which it is the matter to become a knowable thing.[49] It seems as though, in order for us to know matter, or to be able to discern between its different species, Sokolowski depends on Aristotle making extension something which exists as separate from magnitude. But it becomes very obvious that Aristotle does not hold such a view, writing:

> The extension between the extremities is thought to be something, because what is contained and separate may often be changed while the container remains the same – the assumption being that the extension is something over and above the body displaced. But there is no such extension… If there were an extension which were such as to exist independently and be permanent, there would be an infinity of places in the same thing.[50]

This quote is similar to the above concept regarding a triangle. A triangle will always remain a triangle, since it is a three-sided shape, despite its properties undergoing a change. So, the essence of the triangle, which is its simple definition, will survive despite its angles changing degrees or its side-length changing in measurement, etc. In the vessel example above, the vessel

[49] Ibid, 34-35.
[50] Hardie and Gaye, *The Physics*, 38.

will always remain the same and can exist without water or air. If matter were given that same status, and were able to exist uncontained, it would only ever be able to be in place potentially, much like how traditional prime matter only exists as potential, when separate from a composite. Further, if a transcendent common matter existed, by means of being infinitely extended, it would no longer be dependent on the substance for both an identity and to be knowable, and as such, would stop continuously filling forms, or as Aristotle writes, would no longer naturally fall into place. This conclusion then results in the inability for numerically whole composites to form, as matter would no longer depend upon form to be sensibly knowable.

Aristotle clarifies this point when he writes, "So, when you have a homogenous substance which is continuous, the parts are potentially in place: when the parts are separated, but in contact, they are actually in place."[51] Matter cannot be granted the same status as substance because then the two would exist as equals and no composite would be able to be formed since all ontological dependency would be erased. Again, this leads to the same conclusion that something cannot retain an identity by being both independent and potential. As stated, the extended prime matter promoters attempt to make matter both potential and actual, or in other words, like substance while still retaining its matter-like nature, but this is impossible. Instead, infinite space would result if matter were to be treated as a separate entity, resulting in matter-less forms and form-less matter. This conclusion is analogous with the relationship between extension and magnitude if extension were to be given equal status to the magnitude in which it is contained. Infinity then is best defined as a process which reveals to us certain characteristics of a substance and, in doing so, is often misjudged to possess those characteristics itself. For a

[51] Ibid, 40.

brief example, we see Aristotle explain this exact dilemma in relation to motion and its being misunderstood as infinity. He writes:

> The infinite is not the same in the sense that it is a single thing whether exhibited in distance or in movement or in time, but the posterior among these is called infinite in virtue of its relation to the prior; i.e. a movement is called infinite in virtue of the distance covered by the spatial movement or alteration or growth, and time is called infinite because of the movement which occupies it.[52]

Infinity then is often mistaken to be things which appear to be infinite by their very nature, yet this is not the relationship infinity has with things. Rather, it is the process which reveals certain aspects of, say, motion to us, and should not be taken to be the same as motionitself. Yet, we conceptually see infinity to be such due to our innate desire to make it knowable. The only way then that infinity can be knowable and possess characteristics is when it is put in relation to a whole composite or contained within a substance. As such, it is not infinity that we are knowing, but rather, elements and properties of substances, motion, or composites that exist in relation to the infinite, as potentiality. It appears then, that the extended prime matter defenders have made the very mistake of believing one can, in fact, apprehend the infinite. Further, extension is not to be defined as being actually infinite but rather potentially infinite since, as Krizan states, if we continuously divide magnitude, it will result in its destruction. Therefore, a limit for division while preserving the whole composite does exist. Lastly, matter cannot be infinite in nature because it results in the inability for one to differentiate between

[52] Hardie and Gaye, *The Physics*, 114.

matter before and matter after undergoing a change by acquiring a new form and therefore, would subsequently result in the erasure of ontological dependency between matter and form.

Prime Matter as a Principle of Change Argument

Equating extension with matter then creates two primary problems; the differentiation between types of matter which undergo change and the creation of a composite. In other words, both this argument and the prime matter argument can be said to reduce the Aristotelian notion of matter in their attempts to understand how it can exist in multiple composites at once, much like how we conceptually reduce infinity. Krizan attempts to resolve these problems, which she claims have placed us exactly where we originally started, by positing her own conception of prime matter without extension, or prime matter as a principle of change. She writes that the failure of the extended prime matter thesis revives the same charges that prime matter receives of being "vacuous and incoherent."[53] She continues, "As a result, the two original objections resurface: (1) prime matter cannot perform its function as a constituent of simple bodies, and (2) prime matter cannot function as a substratum that underlies the elemental transformations."[54] She seems to then take matter and equate it to a principle of change.

Krizan asserts that, "The role for prime matter in explaining the elements and their transformations is to function as a logical substratum that explains why the primary contraries change into their opposites."[64] Krizan has successfully separated her definition of prime matter from the other scholars by making it a principle of change, which infinity is incapable of being, and making it what lies at the end of a "goal-less" thought experiment, which simultaneously asserts prime matter as no longer necessary for facilitating elemental change. Now, Krizan's

[53] Krizan, "Prime Matter Without Extension," 542.
[54] Ibid, 542. [64]
Ibid, 543.

argument is based on the interpretation that Aristotle desired to name that unreachable end of the "goal-less" thought experiment where substance is metaphysically stripped of all its attributes.

She writes:

> For substantial changes, it is the ultimate limiting condition – and is more of a primitive principle of explanation than even the elements and their powers, the primary contraries. As a result, it should not be surprising that the concept is paradoxical: it is paradoxical precisely because it is the final principle beyond which no further explanation is logically possible.[55]

Prime matter here has now been presented as the ultimate principle of change since it is where all analysis of the nature of being ends. It is, in a sense, the supreme "underlying thing" which can be used to mark the limit of meaningful dialogue. As such, it is only there to aid us in our investigation of substance and does not play a crucial role in facilitating any change. Krizan ends her essay by writing, "Prime matter is not basic, extended, indeterminate stuff that the objects of the universe are made of; rather, prime matter is a logical constraint and an end point for any analysis of bodies."[66] In other words, prime matter as a principle of change is that which persists in Aristotle's thought experiment. Krizan has now managed to find a third way to make prime matter exempt from possible objections and in doing so she posits a slightly altered prime matter, one which represents a limit and is used to explain change and not facilitate it. The question from this conclusion then becomes, would Aristotle consider prime matter as a principle of change to be that which is left after everything has been metaphysically stripped away? I

[55] Ibid, 544. [66] Ibid, 545.

argue that all of these definitions of prime matter are simply attempts at defining nothing-ness, or for a better explanation, a composite-less entity. I assert in the second half of this essay a metaphysical stripping of substance which results in the final cause as being the best candidate for replacing the jobs originally occupied by prime matter.

Critique of Prime Matter Arguments in Z.3

The most obvious critique of all three of these theories is that they seem to reduce the principles of change solely to the material cause. This observation becomes especially prevalent when we look at *The Metaphysics* Z.3, where Aristotle outlines the above-mentioned thought experiment. This section is crucial in understanding whether or not Aristotle did have an idea of a prime or common, extended matter when writing. It is imperative to first present quotes from the chapter that our promoters of prime matter believe help to further their own argument. According to scholars like Robinson, Aristotle's presenting of a vague base definition for substance, and further, his equating this vague definition with indeterminate matter, becomes enough to assert that prime matter is what Aristotle is truly referencing.[56] Aristotle writes:

> We have now outlined the nature of substance, showing that it is that which is not predicated of a stratum, but of which all else is predicated. But we must not merely state the matter thus; for this is not enough. The statement itself is obscure, and further, on this view, matter becomes substance. For if this is not substance, it baffles us to say what else is. When all else is stripped off evidently nothing but matter remains… By matter I mean that which in itself is neither a particular thing nor of a certain quantity nor assigned to any other of the categories by which being is determined.[68]

Despite Robinson acknowledging that Aristotle does not out-right mention a prime matter in this section, he states that if two alternative points, that Aristotle found this experiment legitimate and that the "bare potentiality" which is revealed is in fact the prime matter, were proved, then it

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[56] Robinson, "Prime Matter in Aristotle," 183. [68]
WD Ross, *The Metaphysics*, 62.

would be safe to assume that Aristotle was speaking of a prime matter when he wrote "By matter I mean."[57] Now this argument, that Aristotle, without warning or indication, switched the type of matter he was discussing in Z.3, has been refuted by many scholars who deem this position to be a stretch. Cook, in her outline of Aristotelian matter, sheds light on the importance of an added clause after Aristotle states that matter must be substance when substance is defined as that upon which all else is predicated. Aristotle writes, "so that to those who consider the question thus, matter alone must seem to be substance."[58] Aristotle, I believe, is revealing how matter has been mistaken for the ultimate substratum due to incorrectly defining the ultimate substratum as "neither a particular thing nor of a particular quantity nor otherwise positively characterized," because of course, when the question is taken in this way, prime matter, being pure potentiality, is the only subject which fits the description.[59] Cook ponders why Aristotle would have added this last clause, and further, investigates what kind of implication it has for his definition of matter. She writes, "First, who are 'those who investigate in this way?' I take it that they are those who attempt to discover the substance by literal application of our inadequate and unclear definition of substance, people who attempt to discover the substance by getting rid of all things that are "against" something and then looking to see what is left."[60] Robinson then has mistakenly thought Aristotle to be describing prime matter when he writes of an "unknowable, ultimate substratum" and while this remains unclear, even if it were Aristotle's intentions to reference a prime matter, I will later show that it is not in support of it.

Sokolowski, on the other hand, states that this very same passage implies "not

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[57] Robinson, "Prime Matter in Aristotle," 182.
[58] WD Ross, *The Metaphysics,* 62.
[59] Ibid, 62-63.
[60] Cook, Kathleen C. "The Underlying Thing, the Underlying Nature and Matter: Aristotle's Analogy in Physics I 7." Apeiron 22, no. 4 (1989): 105-120. 117.

(necessarily) that matter is utterly identical with extension, but simply that it is itself extended."[61] Sokolowski derives this interpretation from the section in the passage where Aristotle states, "But when length and breadth and depth are taken away we see nothing left unless there is something that is bounded by these."[74] Small states that Sokolowski takes this quote to mean that matter is essentially extended because, since length, breadth, and depth have been classified as boundaries for matter's spatial magnitude "there must be something prior to or more fundamental than them, which is susceptible to spatial limitation."[62] When one denudes a substance of all its attributes, they take away that which contains it, or in other words, they take away what contains its infinite extension. The extended prime matter which remains now has lost its dimensions, but is still capable of eventually receiving them again, or rather, it still retains the possibility of being contained once more. Aristotle's thought experiment then reveals, not a bare prime matter, but an extended prime matter which has been denuded of its boundaries. This conclusion is already partly refuted by the above quote from Cook, in which Aristotle is presenting the outcome produced by a view which is incorrect. This viewpoint can be further supported by one of the other previously quoted sections from *The Physics*, in which Aristotle states, "the extension between extremities is thought to be something."[76] This quote seems to parallel the added clause in *The Metaphysics*. Aristotle then makes a similar conclusion at the end of Book Z, that if we take extension to be something, or rather, if we take that which unifies a composite or a magnitude to possess a "thisness," then not only will infinite space occur, but it would also result in the inability of a substance to be numerically whole. Again, granting matter

[61] Small, "Matter, Extension and Intellect in Aristotle," 30. [74]
WD Ross, *The Metaphysics*, 62.
[62] Small, "Matter, Extension and Intellect in Aristotle," 30. [76]
Hardie and Gaye, *The Physics*, 38.

the status of being separate and possessing a "thisness" is made unavoidable, resulting in the inability to unify a substance, as evidenced in the section on the extended prime matter argument. This argument then runs into the same previously mentioned issues as well as the same issues that Robinson runs into of believing the ultimate substratum to be a something or possess a "thisness."

Scholars like Charlton, who both Cook and Robinson reference, state what I take to be a much more plausible interpretation of the above passages. Charlton argues that Aristotle's expressed opinion of what matter is, along with his description of an indeterminate ultimate substratum, is simply him stating what would have to be if matter were taken to be substance.[63] In other words, if the bronze of a statue was given a claim to the "title of reality," as Charlton writes, then Aristotle would be forced to posit a kind of matter which retains its identity despite change, which would result in matter no longer being completely consumed by the qualities and attributes of the form of which it is the matter.[64] This viewpoint gains support when we look at Aristotle's Syllable Regress argument which is outlined in *The Metaphysics*. Marmodoro describes how this argument allows for the unification of a whole substance. When we look at such an argument as it stands in juxtaposition to an argument for prime matter and extended prime matter, we see that the inclusion of prime matter within a composite, actually results in prime matters' inability to fully unify into, or as, a composite. When matter and form become unified what results is a re-identification of the parts "in a way that they cannot be when apart from the whole."[65] She goes on to write, "Once re-identified, they have no distinctness in the

[63] Cook, "The Underlying Thing, the Underlying Nature and Matter," 120.
[64] Ibid, 120.
[65] Anna Marmodoro, "Aristotle's hylomorphism without reconditioning." Philosophical Inquiry 37, no. 1/2 (2013): 5-22., 15.

substance; they exist in it holistically. If they were severed from the whole, they would lose their functional identity, which is conferred to them by the form, on the basis of their role in the whole substance."[66] Therefore, if we take matter to possess an identity away from the whole, then it would result in an infinite regress. The Syllable Regress argument thus states that the "unifying form in a substance cannot be of the same ontological standing as the items it unifies: if it unifies the parts of a substance, it cannot itself be a further part of the substance."[67]

The section in which Aristotle presents this argument is after his assertion in Z.3, and in fact is his final argument in Book Z. Therefore, in revealing its context, it can also be revealed that he asserted this argument in his attempt to rule out any sort of separate identity for matter. Aristotle writes, "But it would seem that this 'other' is something, and not an element, and that it is the cause which makes this thing flesh and that a syllable… And this is the substance of each thing for this is the primary cause of being…" Aristotle goes on to conclude that what unifies a substance, or "b" and "a" into "ba," "would seem to be this kind of 'nature,' which is not an element but a principle."[68] Aristotle's conclusion at the end of Book Z is not that there are no unifiers, but rather that, since unifiers are used to explain how things become numerically one, they must be the principles of change. Marmodoro explains this conclusion when she writes, "Since what is needed is the shedding of only the distinctness of the elements, the role of this unifying principle must be just that: to strip the elements of their distinctness."[69] From this investigation, it can be logically concluded that Aristotle does not take the unifying thing to be matter. Hence, people who take the stripping as literal and as being limited to the material

[66] Ibid, 15.
[67] Ibid, 16.
[68] WD Ross*, The Metaphysics*, 79.
[69] Marmodoro, "Aristotle's hylomorphism without reconditioning," 17.

attributes have only succeeded in believing that which unifies to be something, or rather, to possess a "thisness" when separated from the composite rather than as a principle of change. Krizan, who argues for a prime matter without extension and which instead functions as a principle of change, seems to have realized this flaw in the above two arguments.

Krizan's argument is based in two major notions: first, her argument relies on Aristotle's believing prime matter to exist at the end of his thought experiment and secondly, while she never explicitly references it, she seems to take the Syllable Regress argument and invert it, concluding that if form is what unifies, once that unifier is gone, only that which has been unified, or the matter, will be left. It is clear that she does not take prime matter to be that which unifies, since she believes that task to be unnecessary, writing:

> The only role for prime matter in explaining the elements and their transformations is to function as a logical substratum that explains why the primary contraries change into their opposites. Prime matter does not need to be extended in order to perform this role; it is sufficient that it underlies a substantial change as a logical principle.[70]

Krizan seems to hold the opposite viewpoint, stating that prime matter is necessary for an analysis of the hylomorphic (*hyle* meaning matter, and *morphe* meaning changeable form) body.[71] She writes, "prime matter is not a robust dimensional constituent of bodies, but rather is part of the logical analysis of the elemental transformations."[72] Again, here we see her equate prime matter with a principle of change that explains the hylomorphic framework.[73] Krizan

[70] Krizan, "Prime Matter Without Extension," 543.
[71] Ibid, 542.
[72] Ibid, 542.
[73] Ibid, 543.

concludes that prime matter does have a role in Aristotle's ontology because it is what occurs as the final instance of material abstraction.[74] It appears paradoxical then because it is the point beyond which no further explanation is possible. She goes on to state that this paradoxical nature is required because, without it, physical objects would no longer be able to be separated into more basic parts.[75] She seems to conflate the ideas of an ultimate substratum and a principle of change under her notion of prime matter when she writes, "When constraints of a substance have been removed, there must be something left over; this is prime matter. It cannot be nothing at all in itself because it is required in the explanation of substance, but it cannot be something in itself because it is only something in relation to a substance."[76] The paradoxical nature shines through in this statement, since it seems illogical that something which only presents itself once all attributes have been stripped away from a substance also depends on its relation to a complete substance in order to be something. In other words, how can it cause the logical destruction of a substance by making the separating out of its parts possible, but still only be able to exist and fulfill its explanatory function when it stands in relation to a numerically whole substance? Krizan is correct in assuming that what is left after Aristotle's hypothetical thought experiment is the 'that' which explains the hylomorphic body, yet her further assumption that this 'that' left over, is characteristically prime matter is incorrect. It is this notion that must be refuted in order to demolish her entire thesis, and argue instead that, a better way to examine this metaphysical stripping of substance is in terms of potentiality and actuality.

[74] Ibid, 544.
[75] Ibid, 544.
[76] Ibid, 544.

Aristotle's Answer to The Problem of Prime Matter

Describing Z.3 in a more metaphysical lighting reveals the final cause as that which persists through change, and prime matter as unnecessary when evaluating substance. First, it is important to mention that, as stated earlier, we should not be focused on a substance's material attributes but rather its metaphysical ones. This kind of language should already point towards both Aristotle's eventual conclusion, that it is a principle which will ultimately persist, and that his ontology will play a substantial role in determining how a substance should be stripped. Aristotle's ontology rests on the backbone of the asymmetrical relationship between potentiality and actuality, therefore making the inclusion of this relationship in his metaphysical stripping of substance crucial and unfortunately, overlooked by Krizan. In this final section, I will attempt to apply a stripping of substance that is more metaphysical in nature, which further adheres to Aristotle's ontology.

For Aristotle, the ontology of an object is predicated on its nature, and its nature is dependent upon its hylomorphic Being. For example, a child is potentially an adult, or rather, a child is potentially the actualization of the form, adult. It is this end form which is prior to the child because it dictates the end towards which the child strives to actualize. Witt explains this notion when she writes, "Being potentially human is one way of being human, a way in which what you are is not yet realized; your principle or end is not yet realized in you. Being actually human is another way of being human…the principle of your being, is fully realized in you."[77]

[77] Ibid, 676.

So, "that for the sake of which" a thing is, its principle of being.[78] Witt takes potentiality and actuality to be ways of Being in which a potential Being is determined by an actual Being in both Being and definition.[79]

Further, this principle of being must exist prior to the unrealized, potential Being in order for the Being to have a form to strive to actualize. Aristotle reinforces this idea when he writes at the end of Book Z that, "Clearly the question is why the matter is some definite thing; e.g. why are these materials a house? Because that which was the essence of a house is present."[80] Aristotle then goes on to write, "But it would seem that this 'other' is something, and not an element, and that it is the cause which makes this thing flesh and that a syllable. And similarly in all other cases. And this is the substance of each thing (for this is the primary cause of its being)." Matter is not infinite in the sense that all kinds of matter can fill all kinds of form, as evidenced in Small's objection to Sokolowski's argument for a common, extended matter. Instead, this "other" something, which makes that flesh and that syllable, is the "that for the sake of which" Aristotle previously mentioned.

I believe that the principle Aristotle indirectly references is both his early interpretations of what he will later call the final cause as well as the same principle of being which Witt posits. One can logically sublate Witt's principle of being with Aristotle's final cause due to a similarity in definition. Witt describes her principle of being as applying to Beings which exist towards their ends.[81] Further, they exist "for the sake of their ends."[82] This parallels Aristotle's definition

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[78] Ibid, 676.
[79] Witt, Charlotte. "Hylomorphism in Aristotle." Apeiron 22, no. 4 (1989): 141-158, 675-676.
[80] WD Ross, *The Metaphysics,* 78.
[81] Witt, "Hylomorphism in Aristotle," 676.
[82] Ibid, 676.

when he writes, "Everything that comes to be moves towards a principle, i.e. an end (for that for the sake of which a thing is, is its principle, and the becoming is for the sake of the end)."[83] Therefore, it can be logically concluded from this observation that, not only are Witt and Aristotle talking about the same concept, but that both also believe that the "that for the sake of which" exists prior to the hylomorphism of a substance. This notion is evidenced in the above excerpt where Aristotle states how the essence of a house exists as potentiality within the bricks before the house is built. Matter must have the potentiality to not only possess a particular form, but to actualize that particular form's end goal. If matter does not have the right set of potentialities, "then the process of maturity or actualization would not occur."[84] For example, wood does not have the correct set of potentialities to become a human and so can never become a human. As such, the final cause which underlies all changes now becomes that which provides matter the capability to possess a particular form and therefore undergo a particular kind of change which adheres to a certain set of potentialities.

Being actual is prior to being potential in definition as well. This priority is, according to Witt, a consequence of the principle of being.[85] She reinforces the idea that all things which are potential are said in relation to things which are actual, writing, "Since an Aristotelian definition says what a thing is and since the principle of being of a potentiality is the corresponding actuality, it follows that the statement of what the potentiality is, its definition, will refer to the end or actuality."[86] Therefore, all potential Beings have within their definition their own actualized form, or rather, a "that for the sake of which." This notion again has enforced the idea

[83] WD Ross, *The Metaphysics*, 91.
[84] Witt, "Hylomorphism in Aristotle," 679.
[85] Ibid, 676.
[86] Ibid, 676.

that actual Beings gain ontological priority in every way over potential Beings. I also take Witt's analysis of change and substance in *The Metaphysics* to explain how matter, or something potential, can logically possess the ability to take on a form, or something actual, without the use of prime matter. Each type of matter, whether elemental or more complex, has within it the potential to become a particular hylomorphic body because, as we now understand, it is driven by its relationship to its final cause. It seems very plausible that Aristotle would not only believe the final cause to be fully capable on its own to describe the unity of matter and form, but also believe it to be that which would persist through this metaphysical stripping. Further, if the essence of a house, or an actualized form, exists as potentiality alongside matter, and since this essence must exist as actuality in order for matter to logically take a form, it, the final cause, would be what explains the change, allows the change, and persists though the change. After a thorough metaphysical stripping of substance, in which matter and form, both individually and as a unity, lose their identity, the final cause, as the actualization of a potential identity, is what remains.

The potential to be a particular something exists in matter only in so far as that matter is capable of being that particular something, and further, the "that for the sake of which" or what Witt would call the principle of being, represents an actualized form which can now logically precede matter. Aristotle has shown that matter is not necessarily extended and is not, as many have argued, the ultimate "underlying thing." It is instead a matter's potential for hylomorphism, or end goal, which becomes the "underlying thing" due to an unchanging, actualized form existing within the definition of the potential being. It is, therefore, logically evident that, when all metaphysical and material attributes are removed from a composite, all that will be left is what I would call the final cause and what, in fact, underlies all change.

Conclusion

Traditional prime matter arguments prove to be insufficient, claiming that something actual depends upon what it could be potentially while also asserting that this same ‘underlying thing’ can be both independent and pure potentiality. Further, extended prime matter arguments are insufficient in their promotion of matter as being of the same nature as infinity. The infinite instead, must be understood as a process which allows for a better understanding of the properties of a composite. Even more so, if matter were made to be of the same status as the magnitude which contains it, then infinite space would result, and matter would cease to take on the attributes of the form of which it is the matter. Lastly, prime matter /as a principle of change does not suffice primarily due to its reduction of all the principles of change to the material cause. Prime matter as a principle also neglects the relationship of actual beings to potential beings, a relationship which exposes function, or the goal through which sensible beings strive to actualize, as that which persists. The final cause then, in revealing which actualized forms exist as potential within various kinds of matter, becomes, I believe, sufficient in maintaining both ontological consistency and logical integrity throughout Aristotle’s investigation into the nature of change and Being.

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