



DETERMINING THE INDETERMINATE: A CRITICAL ASSESSMENT OF THE THOMISTIC ARGUMENT FOR EXTENSIONLESS PRIME MATTER AND PROPOSAL OF VARIOUS THEORIES OF EXTENDED PRIME MATTER

DETERMINANDO LO INDETERMINADO: UNA EVALUACIÓN CRÍTICA DEL ARGUMENTO TOMISTA A FAVOR DE LA MATERIA PRIMA SIN EXTENSIÓN Y PROPUESTA DE VARIAS TEORÍAS QUE POSTULAN UNA MATERIA PRIMA EXTENDIDA

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INFORMACIÓN DEL ARTÍCULO	ABSTRACT/RESUMEN
<p>Recibido el: 30/08/2024 Aceptado el: 9/09/2024</p> <p>Keywords:</p> <p>Logic, epistemology, metaphysics, ontology, thinking</p> <p>Palabras clave:</p> <p>Lógica, epistemología, metafísica, ontología, pensamiento,</p>	<p>Abstract:</p> <p>Reconciling the permanence of existence with the existence of change is a long-standing metaphysical puzzle. Some, following Aristotle, resolve this tension by positing 'prime matter', a bedrock which grounds all change. Saint Thomas Aquinas argued prime matter had to be purely potential, thus completely indeterminate and extensionless. This article charitably reconstructs and critically assesses Aquinas' view, arguing it is far too restrictive. Prime matter need only be maximally potential and determinable, allowing it to take on certain determinate properties. I argue extension is an obvious candidate property and propose five theories positing extended prime matter: (1) a subtle revision of Aquinas' own view, (2) a hylomorphic approach which attributes to prime matter an 'elastic' extension, (3) a minimally/infinitesimally extended prime matter inspired by ancient atomism and late-renaissance/early-modern corpuscularianism, (4) a maximally/ininitely extended prime matter influenced by Advaita Vedanta,</p>



and (5) a pluralist approach reminiscent of Aristotle's elements. Crucially, by allowing prime matter a determinate characteristic, each proposal demystifies Thomistic prime matter which one could otherwise charge with being so characterless as to slip into the 'nothingness' which terrified the Eleatics and motivated the introduction of prime matter in the first place.

Resumen:

Reconciliar la permanencia de la existencia con la existencia del cambio es un enigma metafísico de larga data. Algunos, siguiendo a Aristóteles, resuelven esta tensión postulando la 'materia prima' como roca madre que fundamenta todo cambio. Santo Tomás de Aquino, en particular, argumentó que la materia prima tenía que ser puramente potencial, por lo tanto, completamente indeterminada y sin extensión. Este artículo reconstruye de manera caritativa la hipótesis de Aquino y la evalúa críticamente, argumentando que es demasiado restrictiva. La materia prima solo necesita ser máximamente potencial y determinable, lo que le permite asumir ciertas propiedades determinadas. Sostengo que la extensión es una propiedad candidata obvia y propongo cinco teorías que postulan una materia prima extendida: (1) una revisión sutil de la propia visión de Aquino, (2) un enfoque hilemórfico que atribuye a la materia prima una extensión "elástica", (3) una materia prima mínimamente/infinitesimalmente extendida inspirada por el atomismo antiguo, el corpuscularismo del Renacimiento/período moderno-temprano, (4) una materia prima maximalmente/infinitamente extendida influenciada por el Advaita Vedanta, y (5) un enfoque pluralista que recuerda a los elementos de Aristóteles. Lo fundamental es que permitir la materia prima una característica determinada desmitifica la materia prima tomista evitando la acusación de que esta materia es tan carente de carácter que se desliza hacia la "nada" que aterrizó a los eleáticos y motivó la introducción de la materia prima en primer lugar.

Introduction

Reconciling the permanence of existence with the existence of change has been a central puzzle of metaphysics since before the term "metaphysics" was even coined. The 6th century B.C. Milesians believed a permanent primordial reality underlied change, whereas fellow Ionian Heraclitus believed change was the only constant. Not long after, Eleatic philosopher Parmenides made the inverse claim, suggesting change, and not permanence, was illusory. Thankfully, Aristotle's *hylomorphism* brought Western Philosophy full-circle harmonising change and permanence by positing that semi-permanent substances, made of matter and form, underlied accidental change. Only, the existence of *substantial* change meant the hunt for the primordial substrate raged on. One possible candidate, *prime matter*, became the subject of much disagreement in subsequent scholastic exegeses of Aristotle's work with some believing it to be so bare as to lack any positive property at all and others granting it much more. Here, I focus on

an argument from the former camp, namely Saint Thomas Aquinas' argument that prime matter is extensionless. Though the argument is valid, its major premise is unnecessarily restrictive in characterising prime matter as *purely* rather than only *maximally* potential. Relaxing this premise accordingly allows prime matter to exhibit extension contra Aquinas' conclusion. To justify this contention, I first contextualise the debate, elucidating the motivation behind positing prime matter. Thereafter, I reconstruct and charitably substantiate Aquinas' argument. Finally, I critically assess the argument, demonstrating the need to relax the major premise and allowing us to propose various sensible theses which posit both *potentially* and *actually* extended prime matter.

Part I: A Primer on Prime Matter

Why Prime Matter?

The necessity of having *something* underlie change is perhaps best understood by considering the Parmenidean problem of change.

To Parmenides, *being* comes either from being itself or from non-being. A firm supporter of the rather reasonable credo *ex nihilo nihil fit* – “out of nothing comes nothing” – Parmenides rejected the latter option as it relies on the perhaps more questionable *creatio ex nihilo* – “creation out of nothing”. However, he believed the remaining option, that being comes from being, implied the impossibility of change. What is already *is*. So, for change to happen, novelty must enter the mix, which can only occur through nihilistic generation (see Guthrie, 1962, pp. 4-26 for a fuller treatment of the issue).

That being said, most mediaeval scholastic philosophers, beholden to their contemporary interpretation of Christian theology, believed God's original creation was, in fact, *ex nihilo* or at least *ex deo*, i.e. emanating from God and nothing else (Soars, 2021, pp. 950-952). Nevertheless, Parmenides' argument retained its force as everyday cases of *natural* generation and corruption, e.g. the creation of a chair from wood and its subsequent destruction by rot, required a further explanation.

While complete *creatio ex nihilo* is not without its supporters (Oord, 2014, pp. 1-6), the most popular responses to Parmenides, notably Aristotle's hylomorphism and the

scholastic solutions which it inspired, conceptualise change as differentiated being emerging from pre-existing being. The present being – i.e. the current state of affairs – comes about from a being which existed but not in the same way the present exists now. The creation of a chair from wood requires a chair to come from a non-chair, but this non-chair already existed and contained the matter necessary for composing the chair.

Ultimately, underlying every instance of natural change is some pre-existing matter. This much had long been obvious to the Sumerians, Babylonians, and Egyptians, whose traditions held that the universe was formed from an ocean of eternal formless primordial matter (Wasilewska, 2000, pp. 44-74). Assuming the existence of such a base layer and not an infinite regress, it is *this* substrate that withstands all change which I will henceforth call prime matter.

Aristotle on Prime Matter

Whether Aristotle, himself, was actually committed to anything like prime matter is uncertain. Some contend that Aristotle needs prime matter for hylomorphism to be coherent, while others believe that granting it leads to contradictions (Graham, 1987, p. 489). For my purposes, I will focus on the traditional prime-matter-supporting account.

Aristotle's hylomorphism holds that everyday objects are substances composed of matter and form – the matter being the underlying 'stuff' and the form, the mode in which that stuff is arranged (Ackrill, 1987, *Metaphysics*, III.3). The notion of form is further bifurcated into substantial form, an object's essential mode or natural end (Ackrill, 1987, *On the Soul*, II.2), and accidental form which gives objects their non-essential properties (Skrzypek, 2019, p. 67).

A simplified example sees a green wooden chair composed of wood – its matter – and this matter being 'informed' by *chairness* – its substantial form – as well as an accidental form – its *greenness*. If its *greenness* is washed off, it loses its accidental form, but the chair-substance, i.e. its substantial form and matter, remains. Substance 'withstands' accidental change. However, if the chair is hacked into pieces, we should want to say that the substance is no longer present, but that change has nonetheless occurred and that nothing has fundamentally gone into or out of existence. Indeed, the

chair loses its *chairness*, its substantial form, but its matter, the wood, remains. Matter withstands substantial change.

This picture is of course a gross oversimplification. The chair-turned-wooden-pieces is also a fully-fledged substance capable of change. Wood is not a basic type of matter; it is not prime matter. At the most basic level, for Aristotle, are the four elements: *earth*, which is cold and dry, *water*, which is cold and wet, *air*, which is warm and wet, and *fire*, which is warm and dry. Unfortunately, these too are capable of transformation. After all, how does water become vapour if not through elemental change?

There must then be a bottom substrate underlying this change. Though there is evidence that Aristotle never believed that prime matter could exist independently – “Our own doctrine is that although there is a matter of the perceptible bodies (a matter out of which the so-called 'elements' come-to-be) it has no separate existence but is always bound up with a contrariety” (Dimas, et. al, 2022, *II.1*, 329a24-26) – *if* its nature were in any way characterizable, it would be by its pure potentiality, its ability to become any of the four elements. Notwithstanding this, Aristotelian-inspired prime matter is devoid of any positive attribute as these belong only to the hylomorphic substances which it becomes.

Part II: Saint Thomas Aquinas' Argument for the Extensionless of Prime Matter

The Argument, Broadly

This kind of prime matter is what many scholastics, particularly Saint Thomas Aquinas, took to be the bottom substrate underlying all change.

Aquinas' metaphysics are remarkably similar to Aristotle's; they might be described as the result of synthesising hylomorphism with mediaeval Christian theology (See Aquinas, 1949 for an overview of Aquinas' metaphysics). For Aquinas, things are composed of matter and form, with form *actualising* the *potency* of matter. Matter is the substrate which allows for change, and prime matter is the lowest substrate.

For prime matter to underlie all change, however, it must be *purely potential* with no *act*; it must be formless. Aquinas takes this to mean that prime matter can have no

actual positive characteristics at all. We are left with quite a murky idea of prime matter, one which if it could be characterised at all would be completely timeless, invisible, uncomplex, and undifferentiated – though even this sort of negative characterisation might still be ascribing too much to prime matter (Kent, 2006, IV).

Naturally, Aquinas thought that prime matter was extensionless – or rather to avoid directly characterising it – that it could not have extension. His argument can be summarised like so (Pasnau, 2011, pp. 54-56):

1. Prime matter is pure potency devoid of any specific characteristics and attributes, all of which are related to form and actuality
 2. Extension is a specific characteristic or attribute related to form and actuality
- ∴ Prime matter does not have extension.

This argument is obviously valid. However, it is worth developing each premise to verify its soundness and to expand upon what might otherwise seem too simplistic a view.

Premise I: Prime Matter as Pure Potency

Aquinas' view that prime matter is pure potency is a direct consequence of it being the ultimate substrate which underlies all change. Prime matter must be capable of being joined with *all* possible forms, including those which have contradictory attributes, though, of course, not at the same time – recall that for Aristotle, for example, water differed from air, in that the former is cold and the latter, warm.

Prime matter, therefore, has to be completely indeterminate, i.e. it cannot have any *actual* characteristics, but must also be completely determinable, i.e. it must be maximally potential. Though they may seem contradictory, the two go hand-in-hand. If prime matter had any determinate quality, it would only be moderately potential, being incapable of becoming any *actual* thing which had determinate qualities that contradict the quality it already has. If prime matter were not completely determinable, it would be locked out of some possible *actuality*, moderately determining it.

Thus, we are left with a *purely* and *maximally* potential prime matter. It must be determinable into any possible substance – according to Aquinas, by God through form – and yet lack any determinate quality when it is in its barest uncoupled state.

Premise II: Extension as Incompatible with Pure Potency

Though the idea that extension is a specific determinate characteristic, thus related to form and actuality may seem obvious, it is worth defining extension to understand why Aquinas excludes it from prime matter.

Extension is generally understood as the quality of being stretched through space. For Aristotle, the attribute of extension was synonymous with quantity, one of his ten categories of predicates. Quantity defines not only how much of a substance there is but also whether it is composed of parts, whether these parts are continuous or discrete, and whether or not they stand in any particular relation to each other (Studtmann, 2004, pp. 69-71). It is an accidental attribute as is every category save for *substance* which can only be predicated of itself. On this view, it is quite easy to see why prime matter lacks extensionality: matter is devoid of any accidents, which all inhere in substance via form. Aquinas seems to follow Aristotle in his treatment of extension. Extension, being a property of *actual formed* substance, cannot be ascribed to prime matter.

The idea that prime matter is extensionless, or, at least, lacks the quality of extension seems a particularly odd notion, but it can be parsed by understanding extended bodies as *partes extra partes*, or “parts outside of parts” as many scholastics did. To be extended is to have multiple parts which are not co-located. Although prime matter could equally be one or multiple coincident parts confined to a single point for it to lack extension, Aquinas takes the view that it has no parts at all; it exists holonmerically, existing *wholly* everywhere it is present (Pasnau, 2011, pp. 55-56).

Part III: A Critical Assessment of the Thomistic Argument

The Argument, Broadly

Before considering each premise in its own right, it is worth critically examining the force and implications of the argument as a whole.

The point of establishing prime matter is for it to serve as a bare substrate upon which all substances can change and come into being.

While we may want to deny prime matter anything that even *looks* like a determinate characteristic, this may simply leave us with nothing. For this reason, Aristotle was suspicious of pure potency. He shared with Parmenides an immense aversion to *creatio ex nihilo*, and so was wary of implying nihilistic generation. Hence, he rejected the notion that pure potency could exist in itself, claiming instead that prime matter and the elements always existed in a mix, “bound up in contrariety” (Graham, 1987, pp. 476-478).

Saint Thomas, himself, admits that the nature of prime matter is completely mysterious – a supposed virtue of his theory. Nothing can truly be said or discovered of prime matter; not even God can make it exist on its own (Brower, 2011, p. 14). However, we may wonder what use prime matter has if it is so devoid of character, and whether, on the contrary, it is possible to theorise an ultimate basic substrate which *is* characterizable.

Premise I: Prime Matter as Maximal Potency

The general worry above opens up an avenue for criticising the first premise. Though we might accept that prime matter must be maximally determinable, we might still want to reject the idea that this denies it *any* specific characteristic or attribute.

The maximal indeterminacy required for maximal determinability is misguided; it may not strictly involve the denial of all specific characteristics or attributes. Rather, maximal determinability, and so maximal potency, requires only that prime matter lack the characteristics which preclude it becoming *any* substance. Consequently, prime matter cannot have any characteristics which admit of contradictions when *actualised* like wetness or dryness, but may have qualities which do not admit of contradictions.

It is also worth noting that it is possible that prime matter has some *actuality*. Firstly, actuality does not necessarily contradict potency. This is evident if we consider the Porphyrian tree first suggested by Neoplatonist philosopher Porphyry in his introduction to Aristotle’s categories. It gives us a hierarchical view of *being* not unlike a modern phylogenetic tree. Every genus of the tree is *determinate* and *actual* in that, say, the genus “animal” refers to actual animals and cannot refer to non-animals but also *determinable*

and *potential* in that it can refer to many different species of animal. For prime matter to have *some* actuality, this actuality must simply not restrict its maximal determinability. Prime matter might then be conceptualised as the top of a Porphyrian tree containing all entities. It would be *determinate* and *actual* in that it would determine some *actual* quality but *maximally determinable* and *potential* in that this quality, by virtue of being shared by all other entities further down the tree, would not rule out its becoming these entities.

Aquinas' belief that *being* is not a genus (Aquinas, 1955, Book I, Ch. 25, § 6) may rule out prime matter from being the literal top of a Porphyrian tree, but all that is required to glean from the analogy to accept the possibility actuality of prime matter is that a thing's *actual qualities* do not contradict its *potential* to become things which also share these *actual qualities*.

We can, therefore, push back against the notion that maximally potential prime matter must also be *maximally* indeterminate and *purely* potential. The attributes, potential or actual, that we attribute to prime matter must simply not constrain its *maximal potentiality*. This relaxes premise I to the following: "Prime matter is maximal potency devoid of any characteristics or attributes which constrain its determinability."

Premise II: Potential Extension as Compatible with Maximal Potency

For the argument to remain valid, premise II must now posit that extension is an attribute which constrains maximal determinability/potential.

Of course, one might ask if there is any attribute which does not constrain maximal determinability. Put otherwise, is there any characteristic which is not simply *contingently* but *necessarily* present in all things? Extension seems to fit the bill. It is arguably necessarily present in all concretely existing things as for anything to *concretely* exist it must occupy some space. After all, it is difficult to conceive of, much less visually imagine, anything *concrete* without conceiving of it as extended. In fact, William of Ockham, a fellow scholastic, posited that all matter, *including* prime matter, was necessarily extended (Pasnau, 2011, pp. 66-71).

Of course, it may be argued that prime matter cannot be, say, two metres tall, for it would then hold a contradictory property to those substances which are three metres tall.

But one need only conceptualise extension as *potential* extension to get around this hurdle. Though it may be objected that *potential* extension is already present in the Thomistic conception of purely potential prime matter, the departure from the Thomistic line is achieved by regarding this extension as a positive characteristic of prime matter.

Premise II Continued: Actual Extension as Compatible with Maximal Potency

Alternatively, extension could be seen as an *actualised* potency. Prime matter might be likened to a rubber band which stretches and contracts to fit the required dimensions of any substance. In this regard, its extensionality is *actual* while being completely *determinable*. The following analysis might serve to strengthen this theory's hylomorphic credentials: the forms – both substantial and accidental – with which prime matter is joined determine the extent to which it is stretched. Accidental form determines its exact extension at any given moment, whereas substantial form determines the bounds between which this extension can vary without provoking substantial change. This conforms to the traditional hylomorphic notion that most, if not all, substances are restricted in the possible extensions they can take on, e.g. a human can be 5 or 6 feet tall but not 50 feet tall.

If variable stretching is objectionable, however, prime matter might simply be *actually* extended but *minimally* so. According to this view, prime matter is assembled to meet the required dimensions of any substance. However, it need never be divided – which could be construed as an intolerable corruption necessitating another substrate – as it is already the smallest actual thing. Crucially, it is still extended and not point-like, though it may still be *actually* indivisible. This minimally extended but indivisible prime matter is evidently compatible with a broad understanding of ancient Greek atomism (see Berryman, 2005 for a comprehensive overview). If we do allow this prime matter to be divided, conceiving of its *minimal* extension as being infinitesimally small, we are left with something akin to the particles of the corpuscularian theories popular in late-renaissance and early modern Europe (see Bigotti, 2020 for a comprehensive overview of corpuscularianism).

Conversely, prime matter could also either be *infinitely* extended, covering every possible space but exhibiting no observable properties where vacuums are supposedly present, or *maximally* extended, covering every space bar vacuums. Though similar to the Thomistic hylomorphic definition of prime matter, this prime matter is *actually* extended by virtue of it exhibiting different properties at different points in space, or alternatively, by exhibiting these properties wholly but in such a way that it *seems* as if these properties are located at different points in space. This view holds individuated objects like chairs and tables to be illusory objects caused by our arbitrary perception of what is actually a *wholly* existing and infinitely/maximally extended prime matter. This is not unlike the notions of *Brahman* and *Maya* in the Vedantic schools of ancient India. Brahman is the monadic ultimate reality which gives off the appearance of Maya, our illusory phenomenological world. A popular analogy likens Brahman to a unified ocean of consciousness whose ripples, Maya, we incorrectly perceive as individuated substances (see Mishra, 2015, pp. 40-42 for a primer on both concepts and the metaphysics of Advaita Vedanta Hinduism more broadly). Furthermore, extending this prime matter four-dimensionally, i.e. through time, allows us to reframe change as static differences between prime matter's co-existing temporal-parts rather than the kind of dynamic change which requires a lower substrate.

Finally, one could abandon monism altogether, establishing a pluralist view inspired by Aristotle's elements which posits multiple prime matters. Their extensionality might still be viewed in any of the aforementioned ways, but they could also possess many other attributes which would otherwise be contradictory when possessed by monadic prime matter. Instead of allowing for inter-prime-matter transformation, as Aristotle allowed for his elements, we must simply see them as incorruptible but nonetheless additively arrangeable so as to achieve substances which admit of degrees instead of extremes.

Thus, the move from a *purely* potential prime matter to one that is only *maximally* potential allows for a great variety of theories which regard prime matter as *potentially* and/or *actually* extended.

Conclusion

Ultimately, the Thomistic argument for extensionless prime matter is valid, but only because it precludes any meaningful predication of extension to prime matter in its major premise by restrictively characterising it as *pure* potency and thus wholly indeterminate when it need only be *maximally* potential and *maximally determinable* for it to function as the ultimate substrate. Relaxing the major premise allows prime matter to take on certain determinate characteristics – extension being the most obvious – so long as these characteristics do not constrain its maximal potency and determinability. This general thesis is not only evidently compatible with various schools of thought across time and geography, but it also has the benefit of demystifying Thomistic prime matter which one could otherwise charge with being so characterless as to slip into the kind of nothingness which so terrified the Eleatic School and which motivated the introduction of Aristotelian hylomorphism in the first place.

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