THE CONCEPT OF SPACE AND THE METAPHYSICS OF EXTENDED SUBSTANCE IN DESCARTES

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ABSTRACT

This essay offers an interpretation of Descartes’ treatment of the concepts of place and space in the *Principles of Philosophy*. On the basis of that interpretation, I argue that his understanding and application of the concept of space supports a pluralist interpretation of Descartes on extended substance. I survey the Scholastic evolution of issues in the Aristotelian theory of place and clarify elements of Descartes’ appropriation and transformation thereof: the relationship between internal and external place, the precise content of the claim that space and body are really identical, and the way we conceptually distinguish space from body. Descartes applies his concept of space in ways that illuminate the metaphysical structure of extension. In particular, he uses the concept to specify the degree to which finite parts of matter are independent of each other. I argue that for Descartes, conceiving extension as indivisible is an artifact of conceiving it as a space. That is, *pace* the monistic reading of Cartesian extended substance, regarding extension as indivisible is an artifact of conceiving it in a way more removed from its real nature.

KEYWORDS: Descartes, substance monism, extension, space

INTRODUCTION

There are long-standing debates in Descartes scholarship surrounding the metaphysics of extended substance. Some of the central topics involved are the real and modal distinctions, nominalism vs. Platonism about the essence of extended things, and the unity or multiplicity (and divisibility or indivisibility) of extended substance. In the recent literature a group of scholars—Thomas Lennon, Kurt Smith, and Alan Nelson—favors a reading of Descartes as a monist about extended substance and an idealist (or even a transcendental idealist) about finite bodies.[[1]](#endnote-1) Other commentators, including Marleen Rozemond and Calvin Normore in recent papers, are loosely united by the claims that Descartes was a pluralist about extended substance and a realist about particular bodies.[[2]](#endnote-2) My topic here is Descartes’ account of the concept of space and its relationship to body. Because the discussion of place and space is closely connected with motion and divisibility, the texts concerning space are important for interpreting Descartes’ metaphysics of the material world, and they show up frequently in that literature. My claim here is that a careful interpretation of the concept of space in Descartes’ *Principles of Philosophy* supports the second kind of reading of the metaphysics of extension: there are many extended substances which are really distinct, and these particular parts of matter are real as opposed to phenomenal.

In Section 1 I sketch the historical background for Descartes’ account of place and space, including the distinction between internal place (space) and external place. In Section 2 I argue that, *pace* some commentators, internal and external place are distinguished solely on the basis of dimensionality, *not* on the intrinsic-extrinsic distinction as that is understood in contemporary philosophical discourse. In Section 3 I interpret Descartes’ claim of real identity and conceptual distinction between space and body. This interpretation is applied in Section 4, where I argue that a space is, for Descartes, extended substance under a description, where the description specifies a *role* that a body can play relative to particular reference bodies. I show how he deploys this concept of space in arguments that bear directly on the metaphysical structure of extended substance. Descartes uses the concept of a space, properly understood, to specify the way in which parts of matter are independent of each other, and the sense in which the extended world is indivisible. I show how this supports the pluralist reading of extended substance, insofar as that interpretation relies on a non-trivial degree of independence for the parts of matter. I also show how a specific recent argument for a monistic reading relies on a misreading of the identity of space and body. In closing I draw some general conclusions about the texts on space and monistic readings of Cartesian extension.

1. PLACE AND SPACE: THE SCHOLASTIC-ARISTOTELIAN CONTEXT

Descartes appropriates the Aristotelian account of place as it came through the Scholastics. There are a couple of long-standing issues in the Aristotelian view of place that are crucial for understanding Descartes’ account. Aristotle made two claims about place that are *prima facie* in conflict with each other: first, a body’s place is the surface of the immediately surrounding bodies; and second, place is immobile.[[3]](#endnote-3) Aristotle and those who adopted his account of place had to make sense of the conjunction of these two claims. If place is a surface, and surfaces move with the bodies to which they belong, it is not clear how place can be immobile. Aristotle’s own answer is brief and undeveloped. He introduces the example of a boat at anchor in a river, which appears throughout the Scholastic tradition and is taken up by Descartes; Aristotle claims that the whole river is the place in that scenario, since it is immobile and the water is not.[[4]](#endnote-4)

Edward Grant has shown that this puzzle in Aristotle’s theory of place was taken up by medieval philosophers, who proposed a number of solutions.[[5]](#endnote-5) Descartes is clearly responding to the issue in *Principles* II.10-12, so I will introduce the main solutions in outline. Aquinas considered the following objection to Aristotle’s definition of place: “Since the container is mobile, the terminus of the container will also be mobile. And thus a thing existing at rest will have diverse places.”[[6]](#endnote-6) Aquinas answers the objection by defining the *ratio* of place as the *ordo* or *situs* of the successive surfaces with respect to some immobile whole.

Therefore the place of the ship is determined in the flowing water, not in respect to this water which flows, but in respect to the order or site which this flowing water has to the whole river. And indeed this order or site remains the same in the water which succeeds.[[7]](#endnote-7)

Aquinas’ view survived in later Scholastic accounts as the distinction between material place, which is mobile, and formal place, which consists in a constant relation to the outermost sphere and is thus immobile. Aquinas still accepts Aristotle’s definition, so place is defined as the innermost motionless containing surface. The identity of the place through time consists in the fact that the surfaces successively have the same position with respect to the whole river, or rather the riverbed.

Scotus revised this account to deal with what he saw as fatal errors therein. On his view the successive surfaces surrounding a body at rest can be regarded as numerically identical “by equivalence,” though they are really numerically different. The idea is that the surfaces have “equivalent” values of some relevant qualities, probably including shape and size. In this way he avoided saying that one and the same relation or *ordo* persisted in a succession of different subjects, which he thought problematic.[[8]](#endnote-8)

If we look directly at two of the Scholastics with whose works Descartes was acquainted, Suarez and Eustachius, we see that they adopt elements of these ways to understand the immobility of place. Here is Suarez, who touches on the point in the course of arguing that place is not a quantity:

Further, insofar as place must be immobile, as Aristotle says, the different surfaces succeeding each other at the same distance from the poles are said to be numerically the same place…[[9]](#endnote-9)

This recalls the solution of Aquinas. Different surfaces successively satisfy a certain condition, namely being a certain distance from the poles of the celestial sphere, and for this reason they are saidto be numerically identical. Again, place is still defined as a surface. Nonetheless the place is immobile because the surfaces count as the place only when they stand in this fixed relation to the immobile poles.

Eustachius of Sancto Paulo, whose *Summa* Descartes studied as he prepared the *Principles*,gives four answers to the immobility problem, without making it clear how they are related. One of these is that the body is “always conceived to be surrounded by the same imaginary surface,” and another, recognizably Scotist, is that “the new surface of air which succeeds another is judged to be the same by equivalence [*per aequivalentiam*].”[[10]](#endnote-10) Again, different surfaces successively satisfy some condition, namely, whatever is required for them to be “equivalent,” and this is taken to be sufficient for saying that the place is the same.

Another issue in the Aristotelian account of place concerns dimensionality. A standard objection to Aristotle’s definition, which goes back to Philoponus, is that Aristotelian place cannot contain a body in the required sense, since the place is a two-dimensional surface, while the body is three-dimensional.[[11]](#endnote-11) To deal with this problem Scholastic philosophers, including the Coimbrans, Toletus, and Abra de Raconis, deployed the idea of internal place.[[12]](#endnote-12) The superficies between the body and its surroundings, discussed above, is termed “external place.” Internal place, by contrast, is either the three-dimensionalthree-dimensional volume of the body or the three-dimensionalthree-dimensional volume it happens to occupy. At any rate, internal place differs from external place at least in this respect: it does not contain the body in it as a closed surface contains a volume; rather, it coincides with the body in all three dimensions.

2. DESCARTES ON INTERNAL AND EXTERNAL PLACE

I return now to Descartes. To understand the treatment of space in the *Principles* it is crucial to grasp how it fits into the argumentative arc of Part II. After arguing that extended substance exists (II.1), and that its nature consists solely in extension (II.4), Descartes proposes reasons why one might doubt that his conception of body is correct. One of these reasons is that a mere three-dimensional extension is commonly taken to be no more than a space, “or even an empty space; and almost everyone is convinced that this amounts to nothing at all.”[[13]](#endnote-13) The objector proposes that instead of defining matter or body, Descartes has really defined space, which is somehow devoid of the reality that body is supposed to have.[[14]](#endnote-14)

Descartes responds to this doubt by presenting an analysis of place and space that has two crucial results: first, these terms do not indicate anything real over and above bodies; second, place and space are concepts that are derived from and dependent on the concept of body or matter. He then uses this analysis to refute the doubter’s objection. First, a space is nothing more and nothing less than body considered in a certain way. Thus the term ‘space’ does not signify some less real, non-corporeal object, a “mere” extension; it just signifies body in a different way. Second, the doubt actually presupposes the notion of body Descartes proposes. Hence there is no force to the doubter’s objection; not only is it incorrect in taking a space to be nothing, but it is based on a concept that presupposes the disputed notion of body. This is the immediate context for Descartes’ analyses of place and space.

Descartes adopts the distinction between internal and external place. Like the Scholastics, he takes the former to be the same as space.[[15]](#endnote-15) Internal place or space is, according to Descartes, “something extended in length, breadth and depth” (AT VIIIA 46; CSM I 227). Hence the nature of space is identical with the nature of body. The distinction between body and space is merely conceptual, a *distinctio rationis*, in the theory of distinctions laid out in *Principles* I. In short, the distinction amounts to the following: a space is conceived when we think of some part of extension as remaining one and the same just in case it keeps the same shape, size (volume), and position with respect to specified external bodies. The space is thus conceived as remaining the same even when the body in the space is replaced by another.

External place, on the other hand, is “the surface [*superficies*] immediately surrounding what is in the place” (AT VIIIA 48; CSM I 229). Descartes characterizes this surface, or superficies, as a mode, but one which need not be conceived as belonging to the bodies of which it is the common boundary. Descartes accepts that a ship, “pulled equally in one direction by the current and in the opposite direction by the wind,” isn’t changing place. Hence the surface, which is stationary, cannot belong to the surrounding bodies. Rather, the external place is “simply the common surface, which is not a part of one body rather than the other but is always reckoned to be the same, provided it keeps the same size and shape.”[[16]](#endnote-16)

Descartes uses the terms *locus externus* and *locus internus* in the *Principles*. In the Scholastic tradition this distinction was also indicated by *instrinsecus* and *extrinsecus*. The latter pair of terms do not necessarily connote all that their cognates do in contemporary philosophical usage. For example, Toletus distinguished between real and imaginary internal place. As Cees Leijenhorst puts it, “The magnitude of a body is really intrinsic, whereas imaginary space is intrinsic in the sense that it is conceived as coinciding with a body rather than externally surrounding that body.”[[17]](#endnote-17) This “real internal place” is the body’s magnitude, its own shaped volume; this kind of internal place moves with the body. Thus Leijenhorst: “Toletus employs imaginary intrinsic space in order to solve the problem of immobility. Imaginary space is conceived as immobile, in contrast to bodies that move from one place to another.”

*Pace* Edward Grant (and scholars who follow his reading), Descartes’ internal place is not intrinsic in the sense of being inseparable from the body. [[18]](#endnote-18) Grant interprets Toletus’ internal place exclusively as the body’s own shaped volume, which moves with it.[[19]](#endnote-19) He then extends this to Descartes. On this reading, change of place can only be change of external place. But Descartes’ notion of internal place is designed precisely to avoid the immobility problem.[[20]](#endnote-20) Grant’s work, however, informs the readings of several commentators.[[21]](#endnote-21) Thus Calvin Normore writes, “Because the internal place of a quantity of extension just is that extension itself, it moves with the extension.”[[22]](#endnote-22) Thus, on this account, internal : external :: intrinsic : extrinsic. This is a misreading.

The only difference between Descartes’ internal and external place is dimensionality: external place is a closed surface that bounds a volume, while internal place is the volume bounded. The two kinds of space have the same identity conditions. In articles 10 and 12 a space clearly remains numerically the same, or is at least conceived as such, just in case its size, shape, and relative position all remain the same.

The difference arises as follows: in the case of a body, we regard the extension as something particular, and thus think of it as changing whenever there is a new body; but in the case of a space, we attribute to the extension only a generic unity, so that when a new body comes to occupy the space, the extension of the space is reckoned not to change but to remain one and the same, so long as it retains the same size and shape and keeps the same position relative to certain external bodies which we use to determine the space in question. (AT VIIIA 45; CSM I 227.)

Crucially, the same is true for external place, which is defined as ‘simply the common surface, which is not a part of one body rather than the other but is always reckoned to be the same, provided it keeps the same size and shape’ (AT VIIIA 48; CSM I 229). As the example of the boat in the river shows, for the place to remain the same, it is also required that the body in the place keeps the same position relative to some external reference bodies (the banks of the river). Thus an external place also remains numerically identical just in case its size, shape, and relative position remain constant. Even the contained body can change while the place does not. Descartes’ discussion of Transubstantiation in his correspondence makes it clear: the superficies can remain numerically identical even if *both* the contained and containing bodies are replaced, so long as the size, shape, and position of the superficies remain unchanged. [[23]](#endnote-23) Hence, for every internal place there is a corresponding external place and *vice versa*. Both kinds of place, crucially, are identified in part by extrinsic relations, namely their position relative to some reference bodies. Thus internal and external place relate not as intrinsic to extrinsic, but just as a three-dimensional volume to its two-dimensional boundary surface.

Some interpreters, however, seeing that articles 10 and 12 specify extrinsic identity conditions for space, read these articles as referring to external place.[[24]](#endnote-24) This cannot be right. First, Descartes explicitly talks about internal place in articles 10 through 12, and he immediately introduces the term “space” as interchangeable with “internal place.” ‘External place’ does not appear until the title or heading of article 13—in the actual text, not until II.15. It is *prima facie* unlikely that he is really talking about external place in 10 and 12.

Further, when Descartes first gives a clear account of what external place is, he says the following:

Thus we always take a space to be an extension in length, breadth and depth. But with regard to place, we sometimes consider it as internal to the thing which is in the place in question, and sometimes as external to it. *Now internal place is exactly the same as space; but external place may be taken as being the surface immediately surrounding what is in the place*. (AT VIIIA 48; CSM I 229. Emphasis mine.)

First, Descartes emphatically identifies internal place and space. Second, he contrasts external place by saying that it “may be taken as […] the surface immediately surrounding.”[[25]](#endnote-25) The point, I take it, is that there is a difference of dimensionality between internal and external place. The former is “an extension in length, breadth and depth,” but the latter is a *surface*, a two-dimensional entity. Hence external place cannot be identified with space.

The place at issue in II.10-12 is *both* really identical with and conceptually distinct from the occupying body. But external place cannot be identified with space *or* body, because it is two-dimensional rather than three-dimensional. (Descartes makes this very point to Arnauld: AT V 190-1, AT V 194; CSMK 355.) In fact, the argument in II.11 for the real identity between space and body relies crucially on the fact that each is “something extended in length, breadth and depth” (AT VIIIA 46; CSM I 227). Hence one cannot save the reading of internal space as intrinsic by taking II.10 and 12 to be about external place. The external-internal distinction, therefore, is based only on dimensionality.

3. SPACE AND BODY: IDENTITY AND DISTINCTION

Descartes claims that there is only a conceptual distinction between space and body—really they are identical. This latter claim has to be taken carefully, however. For one thing, if *X* and *Y* are identical, then they are necessarily identical. But it is of course not true that a space *S* must be identical with the body *A* occupying it at time *t*. Further, they have different properties: a space is immobile (relative to the reference bodies) while a body is mobile. What, precisely, is being identified? I will take up the claims of identity and conceptual distinction in that order.

3.1 IDENTITY

One might take Descartes to be saying that *this space* is identical to *this body*, and indeed this motivates the reading of internal place as inseparable. A body could not possibly change its space or internal place if that very body were identical with that very space. But Descartes does not come out and make this identity claim. The strongest statement comes in section 10: “For in reality the extension in length, breadth and depth which constitutes a space is exactly the same as that which constitutes a body.” Now a body is only conceptually distinct from its extension, and this implies conceptual inseparability (AT VIIIA 30-31; CSM I 215). Neither the body nor its extension can be conceived without the other. One might take this text, therefore, to be sufficient evidence for a strong claim of identity between *this body* and *this space*. (Even in this text one has to deal with the notion of constitution that Descartes uses. See below.) When Descartes formally argues for the claim in section 11, however, he expands: “It is easy for us to recognize that the extension constituting the nature of a body is exactly the same as that constituting the nature of a space.” The phrase, “constitute the nature of,” requires some explication. Descartes uses the same language in *Principles* I.63: “Thought and extension can be regarded as constituting the natures of intelligent substance and corporeal substance; they must then be considered as nothing else but thinking substance itself and extended substance itself – that is, as mind and body” (AT VIIIA 30-31; CSM I 215).

As Dennis Des Chene points out, however, extension is not the only property belonging to the nature of an extended thing. Divisibility, mobility and impenetrability, at least, are part of its nature as well. Thus “constitutes the nature” cannot mean “is equivalent to the nature.” Rather, to constitute a thing is “to be the ground of the properties that follow from having that nature.”[[26]](#endnote-26) This is what it means for extension to be the “principal attribute” of corporeal substance (AT VIIIA 25; CSM I 210). Thus the identity claim says that the principle attribute of a corporeal substance is also the attribute that gives rise to all the properties belonging to the nature of a space. Descartes apparently thinks it is obvious that extension constitutes the nature of a space; hence the argument for the identity claim simply rehearses the earlier argument that extension alone constitutes the nature of body.

Descartes’ main opponents on space, in the context of his discussion in the *Principles*, are the neo-Epicurean atomists and the Scholastic Aristotelians.[[27]](#endnote-27) In these camps there are many examples of how spatial extension is proposed as something fundamentally different than corporeal extension.[[28]](#endnote-28) Descartes wants to sweep away all of these distinct kinds of extension: there is only the extension of body. The point of the claim that the extensions of space and body are the same is to make it clear that even though we say a body “occupies a space,” there is nonetheless only one extension there, and it is that of the body. The argument proceeds roughly as does Aristotle’s in *Physics* IV.8, which would have been apparent to Scholastic readers of the *Principles*: when everything has been abstracted from the body but its extension, it is supposed to be clear that there is no difference between the extension signified by “space” and that signified by “body.”[[29]](#endnote-29) Thus the identity that Descartes claims is between the extension constituting the nature of space and that constituting the nature of body.

3.2. DISTINCTION

Let us look first at the texts where Descartes describes the conceptual distinction between a space and a body. First, in article 10 he writes:

The difference arises as follows: in the case of a body, we regard the extension as something particular, and thus think of it as changing whenever there is a new body; but in the case of a space we attribute to the extension only a generic unity, so that when a new body comes to occupy the space, the extension of the space is reckoned not to change but to remain one and the same, so long as it retains the same size and shape and keeps the same position relative to certain external bodies which we use to determine the space in question. (AT VIIIA 45; CSM I 227)

And again, in article 12:

For if a stone is removed from the space or place where it is, we think that its extension has also been removed from that place, since we regard the extension as something particular and inseparable from the stone. But at the same time we think that the extension of the place where the stone used to be remains, and is the same as before, although the place is now occupied by wood or water or air or some other body, or is even supposed to be empty. For we are now considering extension as something general, which is thought of as being the same … provided only that it has the same size and shape, and keeps the same position relative to the external bodies that determine the space in question. (AT VIIIA 46-47; CSM I 228.)

There are two closely related aspects in which the conception of a body differs from that of a space. First, when we conceive of a space we are somehow considering the extension as “something general,” or as having “only a generic unity.” Second, the conditions under which a space is the same space are different from those under which a body is the same body. (Descartes here assumes that bodies retain their identity through motions, and provides no criterion of identity for them, but he does specify the identity conditions for a space such that the space can retain its identity through change of body occupying the space.) The upshot of the distinction’s second aspect is that a space is conceived as remaining the same space even if it is occupied by a succession of different bodies, provided certain conditions obtain. A space persists through a period of time if and only if, for every moment during that period, some body or other is in the specified position and has the specified size and shape.

The first aspect of the conceptual distinction explains the second. To conceive a body or part of matter just as a determinate size and shape is to conceive of something able to be instantiated by many particulars. Descartes has set this point up in II.8, on the conceptual distinction between quantity and the extended substance:

We can think of the number ten, or the continuous quantity *ten feet*, without attending to this determinate substance. For the concept of the number ten is exactly the same irrespective of whether it is referred to this measurement of ten feet or to anything else; and as for the continuous quantity *ten feet*, although this is unintelligible without some extended substance of which it is the quantity, it can be understood apart from the this determinate substance (AT VIIIA 44; CSM I 226).

Similarly, one can conceive of the continuous three-dimensional quantity *one cubic foot*, and one can specify that it is arranged into a certain shape. A shaped volume is still instantiable. This is not yet, however, to conceive of a space; to do so one has to apply a description wherein the shaped volume is linked to a particular location relative to some reference bodies. Given that restriction, and given impenetrability,[[30]](#endnote-30) many particular bodies can satisfy the description, but only successively. That is, many different bodies can bethe extension that is a given shaped volume in a given position, but not simultaneously.[[31]](#endnote-31)

Distinguishing these related aspects of the distinction makes it clear, on the one hand, why Descartes uses the terms “general” and “generic” here, and on the other hand, why only one body can be identical to a given space at one time. As Thomas Lennon points out, modeling the relationship between body and space on that between a token and a type does not explain this latter point.[[32]](#endnote-32) It is nonetheless easy to find interpreters who simply note that a space stands to the body occupying it as extension in general to a particular extended thing.[[33]](#endnote-33)

To further clarify the account I turn to an excellent example recently proposed by Calvin Normore. He has misgivings about the language of generality in these passages, and tries another way to model it:

We can get a firmer grip on what he [Descartes] has in mind if we think of a description like ‘Prime Minister of Canada.’ … [W]hile each [person] at the time he held the office was identical with the Prime Minister of Canada, different people have been the Prime Minister at different times.[[34]](#endnote-34)

Normore is trying to account for the claim of identity between space and body. Yet he does not really save the identity claim as a philosophical thesis put forward in the language of a theory of distinctions. If *a* and *b* are “really identical,” then they are necessarily identical. Not so for Normore’s example.

Nonetheless, the example of a role or office is helpful for understanding the relation between a space and a body. Though conceiving of a part of extension as a space involves abstraction and thinking of the extension as “something general,” it is not simply a conception of body in general. Descartes is proposing that we conceive of extension as space by applying a single term to a series of bodies that successively fit a single description. As Des Chene puts it, “the generic designation is what an Aristotelian would call a *denomination* of the concatenated singular extensions of the bodies in the vase by reference to their container.”[[35]](#endnote-35) The description or designation, however, relates to particular reference bodies—just as the role of Prime Minister of Canada is defined by particular social conventions—such that only one individual can meet the description at a given time.

4. THE NATURE OF SPACE AND THE METAPHYSICAL STRUCTURE OF EXTENSION

There remains a puzzle here, however. What does it mean to say that extension constitutes the nature of space, if we conceive of space by attributing to some extension at least one property (immobility) which it necessarily lacks? To see what Descartes means by “the nature of space,” we must distinguish between the pre-philosophical notion of space and the concept that Descartes is happy to use in his natural philosophy. For Descartes, there is a legitimate concept of a space, but it is typically corrupted by the empiricist prejudices of childhood. (His genealogy of this error is in *PP* II 17-18.) When he says that extension constitutes the nature of a space, he is not addressing the corrupted notion of space, but rather the legitimate concept. Otherwise the attribute of extension would entail contradictory properties in any substance whose nature it constitutes: extension implies immobility (space), but extension also implies mobility (body).

Extension is the ground of the properties included in a space’s nature. But the mere existence of extended substance cannot account for the nature of a space; a conceiver is necessary. Indeed, this is precisely the sort of “conceptual distinction” that applies to the case of space and body: “And in the case of all the modes of thought which we consider as being in objects, there is merely a conceptual distinction between the modes and the object which they are thought of as applying to” (AT VIIIA 30; CSM I 214). It must be the case, though, that extended substance, as such, is apt to be conceived by us in a spatial way. I think this is supposed to work as follows: Extensionimplies divisibility, mobility, and the possibility of shape, according to Descartes. And in an extended world of bodies that can change relative position, bodies can be described according to the roles they play in relation to each other. Such a world allows one to speak of “the corporeal substance filling the container,” or “the spherical extension, one meter in diameter, symmetrically surrounding the upper right corner of my bookcase.” But as I showed earlier, the account of how we conceive of a space involves just these kinds of descriptions: those that define a role by shape, size, and position relative to some reference bodies. The constitution of space’s nature follows this progression, then: extension implies relative mobility; relative mobility allows for role descriptions wherein relative position, size and shape define the role. A space is just an extended substance (or substances) under such a role description. It is significant that a space is *not*, therefore, merely an abstract consideration of body—body as such, or body considered in general. The description defining a space always has to involve reference to particular bodies.

This is what Descartes means by saying that space has a nature: there is an answer to the question ‘What is a space?’ Namely, a space is extension under a description specifying a role, where the role is defined by size, shape, and position relative to some reference bodies. This is how extension constitutes the nature of space: extension is the substantive term in the *definiens*, and the nature of extended substance allows us to conceive of it under the space-defining descriptions.

Descartes’ treatment of the concept of a space bears on questions about his metaphysics. There has long been disagreement about what counts as an extended substance for Descartes. He says that the parts of matter are really distinct, and uses that claim to deny atomism; extension is essentially divisible, so an indivisible atom is inconceivable.[[36]](#endnote-36) On the other hand, it is not clear how independent a part of matter really is. For Descartes, a finite chunk of matter implies the existence of an indefinitely large world of matter. Further, were God to annihilate the contents of the vessel, its sides would *ipso facto* be in contact, unless he simultaneously created a new piece of extension to fill it (AT VIIIA 50; CSM I 231). Spinoza and others objected that the impossibility of the vacuum is incompatible with the independence of finite parts of matter. (This is one reason why the discussion of place and space is a key set of texts for interpreting Descartes’ metaphysics of extended substance.) To my mind, Edward Slowik and Matthew Stuart have shown that the direct textual case for monism is weak, and the case against it strong. Recent monistic readings, however, are driven not only by concerns about the metaphysical interdependence of finite parts of matter, bust also by broader architectonic concerns that I cannot address here. I will argue, though, that Descartes’ use of the concept of space in mereological contexts confirms the pluralist reading and disconfirms the monist reading. In addition, I will show that Lennon’s particular argument for Eleatic monism fails.

If Descartes is identifying a legitimate concept of space, as I have claimed, then we would expect him to put that concept to use, and he does so, precisely in the contexts that most notably call into question the ontological independence of finite parts of matter.[[37]](#endnote-37) In *PP* II.21, for example, he uses the concept to argue that the corporeal world is indefinitely large:

For no matter where we imagine the boundaries [of the corporeal universe] to be, there are always some indefinitely extended spaces beyond them, which we not only imagine but also perceive to be imaginable in a true fashion, that is, real. And it follows that these spaces contain corporeal substance which is indefinitely extended. For, as has already been shown very fully, the idea of the extension which we conceive to be in a given space is exactly the same as the idea of corporeal substance (AT VIIIA 52; CSM I 232).

It makes sense for Descartes to use the concept of space here, given my interpretation of Cartesian space as extended substance under a description specifying a role. The argument is something like this: When we postulate a finite world, we conceive of boundaries. But this necessarily involves conceiving of spaces outside of the boundaries. Why? Because given the bounded world, there is a role-specifying description like “immediately surrounding the bounded world” – that is, there is a space outside it. And since a space just is extension under a description, there is true extension outside of the boundaries. Descartes, by using the term “space” in the argument, indicates that the supposed finite world conceptually implies the existence, not of any particular extended stuff, but of *some extension or other* that fits the role description—as Normore puts it, “any will do.”[[38]](#endnote-38) The concept of space thus mediates the apparent opposition between two Cartesian claims: that the parts of matter are really distinct from one another, and that a finite part of matter can be conceived only as enclosed within a larger whole, *ad indefinitum*.

Similarly, Descartes says many times that extension is divisible, thereby ruling out atoms. But whenever extension is divided, *some part of matter or other* must necessarily, and simultaneously, fill the gap introduced. Thus, discussing the thought experiment wherein God annihilates the contents of a vessel, Descartes says that

although there is no connection between a vessel and this or that particular body contained in it, there is a very strong and wholly necessary connection between the concave shape of the vessel and the extension, taken in its general sense, which must be contained in the concave shape (AT VIIIA 50; CSM I 230).[[39]](#endnote-39)

The phrase “taken in its general sense” means here the same thing as “generic unity” and “something general” in the account of the conceptual distinction between space and body. That is, the extension is considered as a space, as picked out by the description “filling this vessel.” The context makes it quite clear that the vessel defines a space; Descartes is explaining the (mistaken) belief in empty space. His point is similar to his argument for an indefinite universe: a finite part of matter, or matter surrounding a selectively-annihilated part of matter, necessarily implies some part of matter or other, to play the role of encompassing or filling, respectively. Hence Descartes’ treatment of alleged voids, intracosmic and extracosmic, helps to reveal his view on the metaphysical structure of matter, on the degree of independence of the parts of matter.

On this reading, the indivisibility attributed to extension when we consider it as a space is only *de dicto*. *De re*,extension is divisible. I take Descartes at his word when he says that the parts of matter are really distinct (e.g., AT VIIIA 28-9; CSM I 213); indeed this is the central textual weakness of the monist reading. There is no other particular part of matter that must be conceived when I conceive of a given part of matter (where ‘other’ is taken to rule out a part-whole relationship between the two). Yet each body implies the existence of some body or other which fills any gaps in it, surrounds it *ad indefinitum*, etc. Thus it is precisely when we are regarding extension as space, i.e. when we are *not* conceiving extension clearly and distinctly, that we think of it as indivisible. This is squarely opposed to the monistic reading. Smith and Nelson, in particular, argue that for Descartes, all substances are indivisible, and they try to show that extension, conceived “in terms of an adequate, clear, and distinct idea,” is indivisible.[[40]](#endnote-40)

The account given here also challenges the argument upon which Lennon grounds his Eleatic interpretation. Lennon proceeds in three steps: motion requires change of external place; change of external place requires change of internal place; change of internal place is impossible, since a body is really identical to its internal place. Lennon’s second step is correct, I think, since the two kinds of place have the same identity conditions. But the third step goes wrong, because it takes the identity claim to be about a *particular* body and its *particular* space.

**CONCLUSION**

In gaining some clarity on the concept of space and its relation to extended substance, I have shown that Descartes’ account of space and its relationship to body supports the pluralist interpretation, insofar as it shows how Descartes uses the idea of space to specify the non-trivial degree of independence that parts of matter have. (Whether that degree of independence really qualifies them as substances is a further question, but the textual burden of proof is on the monist reading.[[41]](#endnote-41)) A more specific implication is that Lennon’s argument for the Eleatic Descartes relies on a misinterpretation of the identity between space and body. Readings of Descartes as a monist about extended substance have a long history. It seems to me that recent monist interpretations, their systematic virtues notwithstanding, share a tendency to over-interpret Descartes’ use of “body in general” and similar locutions, reading them as indications of an underlying singular substance, whether concrete, abstract, or transcendental.[[42]](#endnote-42) In this essay I have tried to follow the pattern of others who have reexamined those locutions and thereby weakened the case for monism.[[43]](#endnote-43)

1. Lennon 2007; Smith and Nelson 2010; Smith 2010; An earlier, influential monist reading is Martial Gueroult 1980. [↑](#endnote-ref-1)
2. Rozemond 2011; Tad Schmaltz 2009; Normore 2008; Edward Slowik 2001; Matthew Stuart 1999; Dennis Des Chene 1996. [↑](#endnote-ref-2)
3. The problem in Aristotle is ably discussed by Richard Sorabji 1988, and also by Edward Grant 1981, “The Medieval Doctrine of Place.” [↑](#endnote-ref-3)
4. Aristotle, *Physics*, 212a17. [↑](#endnote-ref-4)
5. Grant, 1981, “Medieval Doctrine of Place.” [↑](#endnote-ref-5)
6. Thomas Aquinas 1991. [↑](#endnote-ref-6)
7. *Ibid.*,229. *Est igitur accipere locum navis in aqua fluente, non secundum hanc aquam quae fluit, sed secundum ordinem vel situm quem habet haec aqua fluens ad totum fluvium: qui quidem ordo vel situs idem remanet in aqua succedente.* Aquinas 1954227. [↑](#endnote-ref-7)
8. Grant 1981, “Medieval Doctrine of Place,” 67. See also Roger Ariew 2011, , 87-92. [↑](#endnote-ref-8)
9. Suarez, *Disputationes Metaphysicae*, *Disputatio* XL, Sectio VII.10. “*Immo, quatenus locus debet esse immobilis, teste Aristotele, superficies variae sibi succedentes in eadem distantia ad polos dicuntur esse idem locus numero.*” (my translation) [↑](#endnote-ref-9)
10. Eustachius of Sancto Paulo 1648, 155. (my translation) [↑](#endnote-ref-10)
11. John Philoponus 1991, 23. [↑](#endnote-ref-11)
12. See Grant 1981, *Much Ado about Nothing*, 14-17. [↑](#endnote-ref-12)
13. AT VIIIA 43; CSM I 225. All references to the works of Descartes are given to the Adam and Tannery editions (Paris, 1964–76), cited as “AT” by volume and page, and as translated in *The Philosophical Writings of Descartes*, 1985-1991. Vols. 1–2are cited as “CSM” by volume and page; vol. 3 is cited as “CSMK” by page. [↑](#endnote-ref-13)
14. Roger Woolhouse 1994, 19-33. [↑](#endnote-ref-14)
15. Eustachius 1648,155. [↑](#endnote-ref-15)
16. AT VIIIA 48; CSM I 229. This is paradoxical, since a mode is not really distinct from that of which it is a mode. AT VIIIA 29; CSM I 214. [↑](#endnote-ref-16)
17. Cees Leijenhorst 2002, 113. [↑](#endnote-ref-17)
18. See Normore 2008, 284; Emily Grosholz 1994, 42. Jacques Rohault, in his Cartesian *Traité de Physique* (1671), makes the very same move. [Trans. as Rohault 1723, 28.] [↑](#endnote-ref-18)
19. See Grant 1981, *Much Ado*,273n44. [↑](#endnote-ref-19)
20. Daniel Garber (149-150) recognizes this, but seems to claim that internal place does not involve relative position as external place does (136). Garber 1992. [↑](#endnote-ref-20)
21. Grant 1981, *Much Ado*,15. Grant’s influence here is apparent on Normore (284) and Woolhouse (30-31). See also Grosholz (42). Grant’s reading of Toletus is cited in all these cases. See also Lennon 2007, 37-8. [↑](#endnote-ref-21)
22. Normore 2008, 284; see Grosholz 1994, 42. [↑](#endnote-ref-22)
23. Descartes is trying to show how he understands a point of this doctrine from the Council of Trent: that the *species* of the bread (and wine) remains the same, while the substance is replaced. Descartes takes ‘*species*’ to refer to the Host’s superficies. AT VII 251; CSM II 174. To Mesland he writes,

    When we call it the surface intermediate between the air and the bread, *we mean that it does not change with either, but only with the shape of the dimensions which separate one from the other*; if however, it is taken in that sense, it is by that shape alone that it exists, and also by that alone that it can change. AT IV 164; CSMK 241-2 (my italics) [↑](#endnote-ref-23)
24. Normore 2008, 284; Grosholz 1994, 42. [↑](#endnote-ref-24)
25. The point of the ‘may’ is that external place may also be taken more loosely: e.g., the place of my computer is my office. This is the Aristotelian distinction between ‘common’ and ‘proper’ place (see Eustachius 1648*,* 155-6). [↑](#endnote-ref-25)
26. Des Chene 1996,365. Cf. AT VIIIA 41; CSM I 223. [↑](#endnote-ref-26)
27. Des Chene 1996, 354ff.; Stephen Gaukroger 2002, 102-3. See also Garber 1992 (Chapter 5) for background on Descartes and atomism. [↑](#endnote-ref-27)
28. E.g., Pierre Gassendi 1658, Vol. I, 182-4. For Lucretian space, see Gaukroger 2002, 103. For Scholastic imaginary spaces, see Des Chene 1996, 263. [↑](#endnote-ref-28)
29. Aristotle, *Physics* 216b2-11. See Conimbricenses 1592, 500-501. [↑](#endnote-ref-29)
30. See the correspondence with More. AT V 269-71; CSMK 361-2. [↑](#endnote-ref-30)
31. The matter occupying a space at a given time may in fact be several *bodies*, according to Descartes’ way of counting bodies (AT VIIIA 53-4; CSM I 233). But two distinct chunks of matter, each the right volume to ‘fit’ a given space, cannot both occupy it at the same time. [↑](#endnote-ref-31)
32. Lennon 1993, 199. He there discusses Margaret Wilson’s reading (Wilson 1978, 86-7). Wilson acknowledges the problem. [↑](#endnote-ref-32)
33. E.g., Frédéric de Buzon and Vincent Carraud 1994, 58-9. [↑](#endnote-ref-33)
34. Normore 2008, 284. [↑](#endnote-ref-34)
35. Des Chene 1996, 384. Original italics. [↑](#endnote-ref-35)
36. AT III 477; CSMK 154, AT VIIIA 28; CSM I 213, and AT VIIIA 51; CSM I 231. [↑](#endnote-ref-36)
37. Descartes also a concept of empty space in his physics; basically, it is a non-resistant medium. See AT VIIIA 112 and AT II 483; CSMK 132. [↑](#endnote-ref-37)
38. Normore 2008, 283. See also Des Chene 1996, 354-377. [↑](#endnote-ref-38)
39. See also Rozemond 2011, 255. [↑](#endnote-ref-39)
40. Smith and Nelson 2010, 24. For a reading of the indivisibility required of substances which avoids monism, see Rozemond 2011. [↑](#endnote-ref-40)
41. For the single extended substance as concrete, see Gueroult 1980; as an essence, see Lennon 2007, and (arguably) Nelson and Smith 2010, ; as a form of intuition, see Smith 2010. [↑](#endnote-ref-41)
42. This paper and its earlier iterations received valuable feedback from Tom Lennon, Anja Jauernig, Karl Ameriks, Larry Nolan, Ed Slowik, Geoff Gorham, and four anonymous referees. An earlier version was presented at the Midwest Seminar in Early Modern Philosophy at Macalester College in May 2010; support for my attendance was provided by the Faculty Development Fund of Saint Mary’s College.

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43. [↑](#endnote-ref-43)