

**CORPOREITY, *CORPUS-SUBSTANTIA*, AND
CORPUS-QUANTUM IN GROSSETESTE'S COMMENTARIES
ON THE *PHYSICS* AND *POSTERIOR ANALYTICS***

**CORPOREIDAD, *CORPUS-SUBSTANTIA* Y *CORPUS-QUANTUM*
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POSTERIORES DE GROSSETESTE**

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Abstract

In medieval writers we find a distinction between body as a substance – *corpus-substantia* – and body as a quantity – *corpus-quantitas* (or *quantum*). One of the earliest uses of this distinction is in works written by Robert Grosseteste in the 1220s. In this paper I explore his use and understanding of this distinction. I argue that he understands *corpus-substantia* as such a dimensionless composite of a first corporeal form, corporeity, and prime matter. Corporeity itself is an active power for three dimensions. Through its infinite and necessary self-multiplication corporeity extends the prime matter it informs into three dimensions, thereby resulting in *corpus-quantum*. I explore how Grosseteste's conception of corporeity, though probably based on ideas found in Avicenna, diverges from different understandings of Avicenna's conception of corporeity proposed by medieval and modern commentators.

Keywords

Corporeity; *corpus-substantia*; *corpus-quantum*; Grosseteste; Prime Matter

Resumen

Los escritores medievales distinguen el cuerpo como sustancia (*corpus-substantia*) del cuerpo como cantidad – *corpus-quantitas* (o *quantum*). Uno de los primeros usos de esta distinción lo encontramos en las obras escritas por Roberto Grosseteste en la década de los 20 del siglo XIII. En este artículo exploro el uso y la comprensión de esta distinción por parte de Grosseteste. Propongo que entiende el *corpus-substantia* como tal como un compuesto adimensional de una primera forma corpórea, corporeidad y materia prima. La corporeidad misma es una potencia

activa en tres dimensiones. A través de su infinita y necesaria automultiplicación, la corporeidad extiende la materia prima que informa hacia tres dimensiones, resultando así en *corpus-quantum*. Analizo cómo la concepción de corporeidad de Grosseteste, aunque probablemente basada en ideas de Avicena, difiere de las diferentes interpretaciones de la concepción de corporeidad de Avicena propuestas por comentaristas medievales y modernos.

Palabras clave

Corporeidad; *corpus-substantia*; *corpus-quantum*; Grosseteste; materia prima

Introduction

Asked to describe what a body is, you might say it is something having the three dimensions of length, breadth, and depth. Possibly more is involved; this account might, for example, fail to distinguish a body from a space, if spaces are items distinct from bodies.¹ But it seems that having three dimensions is at least a necessary condition for body. Yet in medieval thinkers we find a notion of body that prescind, or that might appear to prescind, from possession of dimensions. This is the notion of substance-body (*corpus-substantia*), a notion of body thinkers in the Latin West contrast with what they call quantity-body (*corpus-quantitas* or *quantum*).

One of the earliest thinkers known to employ this distinction was Robert Grosseteste. Grosseteste was bishop of Lincoln from 1235 until his death in 1253. From about 1230 to 1235 he had taught the Oxford Franciscans. The details of his career in the preceding period are a matter of scholarly debate as they are largely

¹ Something Grosseteste did not think; he identifies the space into which one body enters after another leaves as purely imaginary; nothing but a body has threefold dimension and a space is the threefold dimension of a body: “Ex eo autem quod videmus continens manere et contentum vel divisum egredi, et semper est spatium aliquod intra ultimum continentis, nec percipitur spatii differentia cum egreditur unum corpus et postquam ingressum est aliud, videtur spatium esse aliquid superstans intra ultimum continentis, aliud a corpore locato et a magnitudine corporis locati, quod spatium idem videtur manere cum unum corpus exit et aliud ingreditur. Sed tale spatium quod sic imaginatur nihil est. Nihil enim habet trinam dimensionem nisi corpus. Locus tamen semper repletur spatio. Egremente enim uno corpore quanto, cuius quantitas est spatium contentum, in loco subintrat aliud, sicut contingit esse proximum aliud corpus ab eodem locabile <locale Dales>, et subintrans replet eundem locum alio spatio numero simili priori. Spatium enim hoc nihil est nisi trina corporis dimensio” (*Roberti Grosseteste Episcopi Lincolnensis Commentarius in VIII libros Physicorum Aristotelis*, edited by R. Dales [Boulder, Colorado: University of Colorado Press, 1963], 78). Dales’ edition unfortunately is rather unreliable. In quotations from this edition in the present paper I have indicated substantive changes to Dales’ text I have made based on inspection of the three manuscripts, followed by Dales’ text in angled brackets. I have also made some changes to Dales’ punctuation and adopted a classicized orthography.

underdetermined by the available evidence. It is generally thought, however, that he worked at Oxford in the 1220s, although it has been plausibly argued that he was in Paris for at least some of this time.² During the 1220s, and perhaps a little before, he was developing what is termed his ‘light metaphysics’. By the ‘light metaphysics’ here I mean in particular Grosseteste’s account of the hylomorphic structure of body in terms of a first or prime matter and a first corporeal form, corporeity (*corporeitas*), identified with light (*lux*). The light-metaphysics is presented most fully at the start of Grosseteste’s minor masterpiece *De luce*, a work probably written in the early 1220s, and forms the metaphysical basis of his account in *De luce* of the genesis of the cosmos of nested spheres from a single point of light-cum-prime matter.³

Grosseteste followed *De luce* with commentaries on Aristotle’s *Posterior Analytics* (*In PAn*) and *Physics* (*In Phys*), commentaries now thought to have been written later in the 1220s.⁴ Both commentaries have the same format: an exposition of Aristotle’s text with the identification of what Grosseteste takes to be its demonstrated conclusions, accompanied by occasional digressions in which Grosseteste presents ideas of his own. *In PAn* is a completed work, whereas *In Phys* is incomplete. A number of digressions in *In Phys* present ideas of the light-metaphysics, including the identification of first form with light.⁵ *In PAn* presents the ideas of first form and prime matter, but does not mention the key idea of light as first form or refer to first form as corporeity.⁶ It is in

² See Joseph Goering, “When and Where did Grosseteste Study Theology?”, in *Robert Grosseteste: New Perspectives on his Thought and Scholarship*, edited by J. McEvoy (Steenbrugge and Turnhout: Brepols Publishers, 1995), 17-51.

³ Robert Grosseteste, *De luce*, edited by C. Panti, “Robert Grosseteste’s *De luce*. A Critical Edition”, in *Robert Grosseteste and his Intellectual Milieu. New Editions and Studies*, edited by J. Flood, J. Ginther, and J. Goering (Toronto: PIMS, 2013), 193-238.

⁴ Robert Grosseteste, *Commentarius in Posteriorum Analyticorum Libros*, edited by P. Rossi (Florence: Leo S. Olschki, 1981); Robert Grosseteste, *Commentarius in VIII libros Physicorum Aristotelis*, ed. Dales. For a recent overview of the dating of Grosseteste’s scientific works, see Cecilia Panti, “Robert Grosseteste and Adam of Exeter’s Physics of Light”, in *Grosseteste and his Intellectual Milieu. New Editions and Studies*, edited by J. Flood, J. Ginther, and J. Goering (Toronto: PIMS, 2013), 164-190, 180-185.

⁵ *In Phys* 1 (ed. Dales, 21-22): “Duo principia prima naturalium sunt forma prima corporis et eius privatio. ... A prima enim forma, quae lux est, gignitur omnis forma naturalis, substantialis et accidentalis, et a privatione ipsius omnis privatio”.

⁶ In addition to the three works mentioned above, the light metaphysics comes up in the short work *De motu corporali et luce* (edited by L. Baur, *Die philosophischen Werke des Robert Grosseteste Bischofs von Lincoln* [Münster i.W.: Aschendorffsche Verlagsbuchhandlung, 1912], 90-92), which Cecilia Panti (“Grosseteste and Adam of Exeter’s Physics of Light”, 182) has plausibly taken to precede *De luce*; and in *De operationibus solis*, a commentary on *Ecclesiasticus* 43: 1-5 (edited by J. McEvoy, “The Sun as *res* and *signum*: Grosseteste’s Commentary on ‘Ecclesiasticus’ ch. 43, vv. 1-5,” *Recherches de théologie ancienne et médiévale* 41 [1974]: 38-91). The dating of this latter work is unclear, but it may be the last of Grosseteste’s works to refer to the light metaphysics. While his *Hexaëmeron*, written in the 1230s, makes frequent mention of light, it does not present the distinctive ideas of the light metaphysics mentioned above.

these two commentaries that Grosseteste employs the distinction between *corpus-substantia* and *corpus-quantitas/quantum*.

The influences on Grosseteste's light metaphysics have received little detailed scholarly attention, perhaps due to a lack of explicit references and to the relative brevity of Grosseteste's remarks. This brevity also makes it difficult to determine in detail precisely what metaphysical assumptions may underlie his remarks. Even so, the most important influence on Grosseteste's views on the fundamental metaphysical makeup of bodies was probably Avicenna. Though it is well known that Grosseteste was also one of the first authors in the early thirteenth-century Latin West to use the works of Averroes, this use seems to postdate *De luce* and the two commentaries, in all of which it is hard to spot influence from Averroes.⁷

In this paper I will be concerned to arrive at an understanding of Grosseteste's use of the distinction between *corpus-substantia* and *corpus-quantitas*. I will argue that his understanding of this distinction, and solution to a puzzle it poses, is based on his own original conception of the first corporeal form, *corporeitas*. Though this conception probably derived from reflection on Avicenna's treatment of corporeity in the *Liber de philosophia prima*, it diverges from Avicenna's view in important respects. Indeed, Grosseteste's conception of corporeity can be seen as occupying a middle ground between two differing conceptions of corporeity scholars have attributed to Avicenna. Thus, according to one interpretation of Avicenna, corporeity is a disposition or aptitude for prime matter to receive three dimensions, but it is not be equated with three-dimensions themselves. According to another interpretation, recently defended

⁷ I mean here the whole of *In Pan* and the continuous commentary in *In Phys*. At the end of the incomplete commentary on book 8, *In Phys* also contains a work that circulated separately as a treatise *De finitate motus et temporis* and that cites Averroes' commentary on the *Physics*, and one of the three manuscripts also contains a note referring to Averroes' commentary on the *Physics* at the end of the brief commentary on book 7. In my opinion these are later additions included with Grosseteste's incomplete commentary. However, in the continuous commentary on book 1 of the *Physics* (ed. Dales, 16-17) I think we can perhaps discern the influence of Averroes' great commentary on *Metaphysics* lambda (*Aristotelis opera cum Averrois commentariis* VIII, Venice 1562; repr. Frankfurt a.M.: Minerva, 1962, fol. 304rb-vb) on a brief discussion of substantial generation and the idea of the *latitatio* (hiddenness) of forms. Both the term 'latitatio' used by Grosseteste and classification of opinions on the nature of substantial generation in terms of a *dator formarum*, *latitatio*, or a movement from potential to actuality, are also found in the Latin text of Averroes, to whom later writers attribute this classification (see, for example, Thomas of York, *Sapientiale* 2. 26, edited by C. Grassi in *The Doctrine of Creation in the Sapientiale of Thomas of York*, 3 vols. [PhD dissertation, University of Toronto, 1952], II. 356-357). According to Roland de Vaux ("La première entrée d'Averroës chez les latins", *Revue des Sciences philosophiques et théologiques* 22 [1933]: 193-224, 220) Averroes' commentary on book lambda circulated in some manuscripts on its own, which might explain why we find only this influence from Averroes' commentary on the *Metaphysics* in *In Phys*. Besides Avicenna, another possible influence on Grosseteste's conception of body is Avicbron, who speaks of a first form and first matter in the *Fons vitae*. I don't have the space here to enter into discussion of Avicbron's influence, but his universal hylomorphism and positing of a form of substantiality prior to corporeity are not found in Grosseteste.

by Andreas Lammer, corporeity just is three-dimensions, albeit indeterminate or unbounded dimensions. By contrast, Grosseteste adopts a conception of corporeity according to which it is neither an aptitude for the reception of three dimensions, nor determinate or indeterminate three dimensions. Rather, it is or is the basis of an *active* power for three dimensions. Grosseteste would seem to equate substance-body with the composite of prime matter and corporeity so conceived, and, I will suggest, would seem to treat this composite as in itself dimensionless. Quantity-body, by contrast, is a result of the infinite replication of substance-body, being either three dimensions themselves or substance-body as it is under three dimensions. This infinite replication, which is due to the first form, corporeity, plays a key role in tackling a puzzle about substance-body and quantity that Grosseteste raises in his treatment of *In Phys* 1. And in his response to this puzzle, I will suggest, Grosseteste ends up with a distinction that may parallel that between unbounded and bounded dimensions, namely the distinction between infinitely replicated substance-body and corporeal dimensions introduced by infinitely replicated substance-body.

Before I consider Grosseteste's use of the distinction between substance-body and quantity-body, I will briefly consider two differing ways to understand Avicenna's treatment of body and corporeity, the first corporeal form, and then Grosseteste's conception of corporeity.

Corporeity in Avicenna

Avicenna treats body primarily in treatise 2.2-3 of his *Liber de philosophia prima*.⁸ Speaking of body in general, he holds that it is a composite of form and matter:

A body is a substance composed of something through which it has potentiality, and of something through which it has actuality (*effectum*). That through which it has actuality is its form, while that through which it has potentiality is its matter, and this is hyle.⁹

By 'hyle' Avicenna means prime matter, matter that in itself is pure potentiality entirely devoid of form. In particular, prime matter in itself does not have dimensions or magnitude. Prime matter cannot exist on its own but must always be informed by

⁸ Avicenna, *Liber de philosophia prima sive scientia divina*, edited by S. Van Riet, 3 vols. (Louvain: Peeters, Leiden: Brill, 1977). See also *Liber primus naturalium, tractatus primus de causis et principiis naturalium*, 2, edited by S. Van Riet (Louvain: Peeters, Leiden: Brill, 1992).

⁹ *Liber de philosophia prima* 2.2 (I, 77): "Corpus igitur est substantia composita ex quodam per quod habet potentiam, et ex quodam per quod habet effectum. Id autem per quod habet effectum est forma eius, per quod vero habet potentiam est materia eius, et hoc est hyle". All translations in this paper are my own unless otherwise indicated.

form, and a material form cannot exist on its own, but must always exist in prime matter.¹⁰

Avicenna describes a body as

a substance in which dimension can be posited in whatever manner you wish to begin, and that from which you first begin will be length; then another dimension can be posited cutting it at right angles, and that will be breadth; and once again, a third dimension can be posited intersecting those at a right angle in the same place of cutting.¹¹

The form that gives actual being to matter so as to give rise to body is corporeity (*corporeitas*). Avicenna describes corporeity as “the true form of continuity receiving what we said about the positing of three dimensions, and this intention is outside measure and outside mathematical corporeity”.¹² Avicenna takes corporeity to be a substantial form, and like prime matter, too, and the composite of prime matter and corporeity, he describes it as a substance, in the sense of substance as that which does not exist in a subject, i.e. in something “already existing through itself in its own specificity (*specialitate*)”.¹³

Avicenna’s remarks on corporeity are far from clear and admit of differing interpretations. To start with, his description above of a body as a substance in which dimension can be posited may suggest that corporeity is a predisposition or potential to receive dimensions. But a predisposition to receive something is not the same as what is received, and so it would seem on this view that the form corporeity is to be distinguished from dimensions and would exist in prime matter (naturally) prior to dimensions. In fact, that Avicenna takes corporeity to be prior to dimensions is a point implied by Grosseteste’s near contemporary, Richard Rufus of Cornwall, writing in the late 1230s. Basing himself on Averroes’ criticisms in *De substantia orbis* of Avicenna’s treatment of body, Rufus holds that

¹⁰ *Liber de philosophia prima* 2.4 (I, 92): “[M]ateria corporalis non habet esse in effectu nisi per essentiam formae, et etiam... forma materialis non habet esse separata a materia. Igitur necesse est ut inter illa sit habitudo relationis, ita ut non intelligatur quidditas cuiusque earum nisi praedicata respectu alterius”.

¹¹ *Liber de philosophia prima*, 2.2 (I, 71-72): “[C]orpus est substantia in qua potest poni dimensio quocumque modo volueris incipere, et illa a qua primum inceperis erit longitudo; deinde potest poni alia dimensio secans illam secundum rectos angulos, et illa erit latitudo; et iterum potest poni tertia dimensio intersecans illas orthogonaliter in eodem loco sectionis”.

¹² *Liber de philosophia prima*, 2.2 (I, 73): “Corporeitas igitur vera est forma continuitatis recipiens id quod diximus de positione trium dimensionum, et haec intentio est extra mensuram et extra corporeitatem disciplinalem”.

¹³ *Liber de philosophia prima*, 2.1 (I, 67): “Subiectum enim intelligitur id quod iam est in sua specialitate existens per se”. Note that substantial form’s existing in prime matter is not existence in a subject in this sense of ‘subject’, since prime matter is not something existing through itself in its own specificity.

Avicenna erred, saying that substantial form must first exist in matter before any dimension at all. For he did not know how to distinguish between bounded and unbounded dimension, and there is a distinction, and there is not the same judgement about them.¹⁴

Both Rufus and Averroes see a distinction between bounded and unbounded dimensions as key to a correct account of body. They think that unbounded dimensions are in a body prior to any substantial form, though not bounded ones. Because, they thought, Avicenna lacked this distinction he simply took substantial form to be in prime matter prior to dimensions in any sense. But their understanding of Avicenna is not obviously correct. In fact, another way to read Avicenna is as in effect treating corporeity as what Averroes calls unbounded dimensions. Understood in this way, Avicenna's remark that a body is that in which dimensions can be posited would be a way of making the point that a body is something having unbounded dimensions capable of being bounded, and corporeity just is unbounded dimensions. Bounded dimensions would be what Avicenna refers to above as measured and mathematical corporeity.

These two ways of reading Avicenna are akin to two different approaches students of the Arabic Avicenna have taken in the modern literature. Thus, some scholars have taken Avicenna's reference to the possibility of dimension being posited, as the Latin text puts it, to mean that corporeity is a predisposition to receive three dimensions, and thus not three dimensions themselves, and that body in an absolute sense just is prime matter plus this predisposition.¹⁵

¹⁴ Richard Rufus of Cornwall, *Scriptum in Aristotelis Metaphysicam Redactio brevior*, 11.6.Q4B, edited by R. Wood, N. Lewis, and J. Ottman: <https://rrp.stanford.edu/SMet11rb.shtml>, accessed June 12, 2023): "Avicenna erravit dicens quod necesse est primo formam substantialem existere in materia ante dimensionem omnino. Nescivit enim distinguere inter dimensionem terminatam et non-terminatam, et est distinctio, et non est idem iudicium de his". For the dating of Rufus' *Scriptum* to 1237-1238, see *Richard Rufus of Cornwall: Scriptum in Metaphysicam Aristotelis: Alpha to Epsilon*, edited by R. Wood, N. Lewis, and J. Ottman (Oxford: Oxford University Press, 2022), 61-62. See also Averroes, *De substantia orbis 1 (Aristotelis opera cum Averrois commentariis IX, Venice 1562; repr. Frankfurt a.M.: Minerva, 1962, fol. 4vb)*: "Unde putavit Avicenna quod dispositio trium dimensionum existentium in materia simpliciter, scilicet non-terminatarum, est dispositio dimensionum terminatarum in ea, quapropter dixit: necesse est formam primam existere in prima materia antequam dimensiones existant in ea. Ex quo accidunt ei multa impossibilia".

¹⁵ See Harry A. Wolfson, *Cresca's Critique of Aristotle* (Cambridge, Mass.: Harvard University Press, 1929), 101; Arthur Hyman, "Aristotle's First Matter and Avicenna's and Averroes' Corporeal Form", in *Essays in Medieval Jewish and Islamic Philosophy: Studies from the Publications of the American Academy for Jewish Research*, edited by A. Hyman (New York: Ktav Publishing House, 1977), 335-356, 353: "The 'corporeal form' ... is a form having a predisposition for receiving the three dimensions - but a *form* which differs from the dimensions themselves" (emphasis in original); Abraham Stone, "Simplicius and Avicenna on the Essential Corporeity of Material Substance", in *Aspects of Avicenna*, edited by R. Wisnovsky (Princeton, N.J.: Princeton University Press, 2001), 73-

Given that prime matter in itself lacks dimensions, this conception of corporeity leads to the conclusion that the composite of prime matter and corporeity *as such* is dimensionless, since prime matter's being informed by a predisposition to *receive* dimensions is not the same as its actually *having* dimensions.

By contrast, Andreas Lammer has recently argued that Avicenna takes corporeity to be indeterminate three dimensions. Or, at least, this is how he occasionally puts it. More often in his treatment of this issue, he speaks of corporeity as indeterminate extension. I raise this point because when we look to Grosseteste's comments on substance-body in *In Phys* it is plausible to think that he in fact did wish to distinguish the notions of magnitude and extension from that of dimension. Even so, bearing this caveat in mind, for the present I shall continue to speak of indeterminate or unbounded dimensions.

Indeterminate or unbounded dimensions, or extension, are to be distinguished from determinate or bounded dimensions. That is, as Lammer puts it,

far from being unextended and from providing a mere predisposition for the assumption of three dimensions, body as such – i.e., the absolute body being the common concept of body that is shared by all particular bodies – is indeterminately extended: it is extended but (i) without having concrete measures and (ii) without even having length, breadth, and depth already identified as dimensions in it.¹⁶

Lammer holds that commentators such as Hyman proposing the former interpretation have incorrectly interpreted Avicenna's remark that body is that in which dimensions can be assumed ('poni' in the Latin translation). Speaking of the Arabic text, he argues that 'faraḍa' (the verb corresponding to the Latin 'ponere') is being used to mean to assume in the sense of a psychological operation. The sense is that dimensions can be assumed or considered in that which is a body, not that they can be placed in or received by that which is a body. The Latin translation 'potest poni', we may note, is ambiguous between these two senses.¹⁷ According to Lammer, Avicenna is speaking of *determinate* or bounded dimensions when he defines body, and means that a body is that in which we can assume or consider determinate three dimensions. That in which we can consider determinate dimensions is a substance indeterminately

130, 101. Andreas Lammer clearly summarizes such interpretations of Avicenna in *The Elements of Avicenna's Physics: Greek Sources and Arabic Innovations* (Berlin: De Gruyter, 2018), 122-125.

¹⁶ Lammer, *Avicenna's Physics*, 129.

¹⁷ The second conception of body as what can receive three dimensions is suggested, we may note, by Algazel's account of body in the *Metaphysica*, 1.1.1 (edited by J. T. Muckle (Toronto: The Institute of Mediaeval Studies, 1933), 9), which aims to expound Avicenna's views and expressly describes a body as being such due not to actual possession of dimensions, but to its having an aptitude to receive three dimensions: "Corpus enim non est corpus propter longitudinem, et latitudinem et spissitudinem que sunt in eo in effectu, sed propter aptitudinem recipiendi tres dimensiones, scilicet, longitudinem, latitudinem, et spissitudinem".

extended in three dimensions, that is, the composite of prime matter and indeterminate three dimensions or extension, i.e., corporeity.

Lammer notes that on this interpretation Averroes, (though, we may note, without realizing it), basically agrees with Avicenna that what is first in prime matter are indeterminate dimensions. Even so, the two authors disagree over the categorial status of indeterminate dimensions. According to Averroes, they are an accident rather than a substantial form. Avicenna, by contrast, according to this interpretation takes them to be the substantial form of body, and to naturally precede accidents. Lammer notes how this conception of corporeity as indeterminate dimensions makes good sense of Avicenna's references to *corporeitas* as a form of continuity.¹⁸

Both interpretations of Avicenna's notion of corporeity take *determinate* or bounded dimensions to be an accident in the category of quantity. Quantity requires measure – a measure of 'how much' – and this is only the case with bounded dimensions. As Algazel remarks in his resume of Avicenna's teaching, "quantity is an accident that accrues *on account of the measuring* of substance".¹⁹

Now, I'm not concerned here to adjudicate between these interpretations of Avicenna. Even so, they provide a context for understanding what is distinctive about Grosseteste's conception of corporeity.

Corporeity in Grosseteste

Grosseteste takes up the hylomorphic composition of body at the start of *De luce*, though he returns to this issue briefly also in *In Phys* and in *De operationibus solis*.

Referring to unnamed authors, at the start of *De luce* Grosseteste introduces the idea of the first corporeal form, "which others call *corporeitas*". Like Avicenna, he describes both *corporeitas* and matter²⁰ – meaning by matter prime matter – as substances. And

¹⁸ Lammer, *Avicenna's Physics*, 136: "[B]ody as such is nothing other than something which is essentially continuous in three dimensions. Corporeality means three-dimensional continuity, and continuity amounts to actual extension and potential divisibility, but it does not amount to concrete dimensions or any determinate extensionality".

¹⁹ *Metaphysica* 1.1.4 (19): "[Q]uantitas est accidens quod accidit propter mensuracionem substantie".

²⁰ Regarding the evolution of Grosseteste's views on corporeity, see Cecilia Panti, "The Evolution of the Idea of Corporeity in Robert Grosseteste's Writings", in *Robert Grosseteste: His Thought and Its Impact*, edited by J. P. Cunningham (Toronto: PIMS, 2012), 111-139. Regarding Grosseteste's views on matter, see Nicola Polloni, "Early Robert Grosseteste on Matter", *Notes and Records: The Royal Society Journal of the History of Science*, 75 (2021): 97-114; and Cecilia Panti, "Matter and Infinity in Robert Grosseteste's *De luce* and Notes on the *Physics*", in *Materia. Nouvelles perspectives de recherche dans la pensée et la culture médiévales (XII^e-XVI^e siècles)*, edited by T. Suarez-Nani and A. Paravicini Baliani (Florence: Sismel - Edizioni del Galluzzo, 2017), 27-55.

like Avicenna too, he holds that corporeity cannot leave matter, nor the converse, since form cannot exist in separation from matter, nor can matter be devoid of form.

Grosseteste expressly holds that both corporeity and prime matter are entirely simple and without dimensions. It is interesting that he sees fit to implicitly distinguish simplicity and lack of dimensions; I don't think they are intended to be synonymous. I believe that by 'simple' here Grosseteste means lacking integral parts. Later, in text I will consider in *In Phys*, Grosseteste seems to closely relate possession of parts with magnitude. So we may hypothesize that he is making a distinction between having dimensions and having magnitude, and making the point that first form and prime matter have neither.²¹

Given that both prime matter and corporeity are simple and dimensionless, Grosseteste faced the puzzle of explaining how corporeity could give rise to actual dimensions. A similar puzzle, albeit minus reference to corporeity, had already been raised in the early years of the thirteenth-century by Alexander Nequam. He wonders how two simples, matter and form, can give rise to a non-simple:

[A]ccording to some, since hyle is simple, and likewise the form associated with it is simple, the substance [they comprise] must itself be simple, since it consists of two simples, namely matter and substantial form. Indeed, it seems that nothing can consist of simples of this sort, as we see in the case of points. ... Is all wood then simple according to the metaphysician?²²

For Grosseteste, the puzzle in particular is how simple and dimensionless prime matter and first form, corporeity, can give rise to an extended and dimensioned body. Grosseteste's solution appeals to his view that the infinite multiplication of a simple can give rise to a finite quantum, though the finite multiplication of a simple cannot.²³

²¹ Other thinkers do posit parts in prime matter itself, prior to form. Thus from at least the 1240s we find treatments of prime matter according to which as it is in itself it has parts, but not parts outside of parts. Form plays the function of making parts be outside one another, and thus gives rise to extension, which is to have parts outside of parts. The earliest reference to such a view of which I have knowledge is by Richard Fishacre in the 1240s (see *In secundum librum Sententiarum* Part 1, edited by R. J. Long (München: Verlag der Bayerischen Akademie der Wissenschaften, 2008), 40-42). In *Metaphysical Themes 1274-1671* (Oxford: Clarendon Press, 2011), 57-60, Robert Pasnau discusses theories of prime matter of this sort, which he describes as "extensionless parts" theories.

²² Alexander Nequam, *Speculum speculationum*, 3. 78, edited by R. M. Thomson (Oxford: Oxford University Press, 1988), 339: "Cum autem secundum quosdam yle sit simplex, similiter et usiosis ei associata sit simplex, oportet ipsam usiam esse simplicem, cum constet ex duobus simplicibus, materia scilicet et forma substantiali. Immo, ex huiusmodi simplicibus uidetur nichil posse constare, sicut est uidere in punctis. ... Numquid ergo omne lignum secundum metaphisicum est simplex?"

²³ *De luce* (228): "[S]implex finities replicatum quantum non generat ... infinities vero multiplicatum necesse est quantum finitum generare, quia productum ex infinita multiplicatione alicius in infinitum excedit illud ex cuius multiplicatione producitur".

Corporeity is a necessarily and infinitely self-multiplying simple form, and by its necessary infinite self-multiplication in all directions the prime matter it inseparably informs is multiplied and extended into finite dimensions:

Corporeity is that to which the extension of matter in three dimensions is necessarily subsequent ... But a form that is in itself simple and lacking dimension could only introduce omnidirectional dimension into matter that is equally simple and without dimension by multiplying itself and instantaneously spreading itself in every direction and by extending matter in spreading itself.²⁴

This extending of matter, as Grosseteste indicates, is not a temporal process. Corporeity *instantaneously* and necessarily infinitely self-multiplies. So there never does or can exist the composite of prime matter and corporeity without there being a body extended in three dimensions.²⁵ Even so, the composite and its component form and matter are themselves naturally prior to extension and actual dimensions, and each of these three is *in itself* without extension or dimensions. That is, if we consider the form-matter composite (naturally) prior to form's infinite self multiplication, that composite lacks extension and dimensions.

Because light (*lux*) has the property of instantaneous and necessary infinite self-multiplication in all directions, Grosseteste concludes in *De luce* that corporeity is light, expressly treating corporeity, and thus light, as a substantial form. This identification of corporeity with light is one of the most original features of *De luce*'s account of body, but it should not blind us to another original and more fundamental implication of this account: a conception of corporeity as being or having an *active* power for three dimensions. This conception of corporeity in terms of active power is suggested in *De luce* by Grosseteste's description of corporeity as that to which the extension of matter

²⁴ *De luce* (226): "Corporeitas vero est quam de necessitate consequitur extensio materie secundum tres dimensiones, cum tamen utraque, corporeitas scilicet et materia, sit substantia in se ipsa simplex carens omni dimensione. Formam vero, in se ipsam simplicem et dimensione carentem, in materiam similiter simpliciter et dimensionem carentem dimensionem in omnem partem inducere fuit impossibile, nisi seipsam multiplicando et in omnem partem subito se diffundendo et in sui diffusionem materiam extendendo, cum non possit ipsa forma materiam relinquere quia non est separabilis, nec potest ipsa materia a forma evacuari". I employ here and below my translation, "Robert Grosseteste's *On Light*, An English Translation", in *Robert Grosseteste and his Intellectual Milieu. New Editions and Studies*, edited by J. Flood, J. Ginther, and J. Goering (Toronto: PIMS, 2013), 239-247.

²⁵ In fact, in *De luce* (231) Grosseteste holds that the 'initial' product of this infinite multiplication is an extended body comprised simply of prime matter and corporeity. He calls this body the first body and identifies it with the firmament. This body seems to be a kind of generic individual. Other kinds of bodies do involve more specific forms, and Grosseteste appears to endorse a version of the view that ordinary bodies are comprised in some manner of a number of substantial forms, speaking in *In Phys* 1 of the substantial form igneity being added to that of corporeity ("Et etiam hoc posito, si super corporeitatem addatur alicui alia forma substantialis - utpote igneitas" [ed. Dales, 15]).

in three dimensions is necessarily subsequent (*consequitur*). It might be thought that by this description Grosseteste means that extension in three dimensions simply is corporeity, the subsequence in question simply being conceptual in nature, as, for example, having three inner angles is necessarily subsequent to being triangular. But I do not think that Grosseteste means this. ‘Subsequent’ can also have the sense of being the result of something, and I believe his remarks are more plausibly read to mean that three dimensions result from corporeity but are not to be identified with it. For Grosseteste immediately proceeds to give an account of how dimensions are given to matter by the infinite multiplication of corporeity or light. No such account would be needed if corporeity just were three dimensions: to have corporeity would as such be the possession of three dimensions. But for Grosseteste such an account is needed, and it is provided by the fact that corporeity is or has an active power to multiply itself and in so doing to give dimensions to the matter it informs

Moreover, Grosseteste more explicitly proposes a conception of first form in terms of active power in *In Phys* 3 and, particularly explicitly, in *De operationibus solis*. In the former, contrasting first form with prime matter, he writes that:

Things having sensible extension and magnitude would not come to be from simple matter except through the infinite replication of matter over itself, and this replicability of matter is a passive power. ... In sensible things there is also the active infinite replicability of form, just as there is a passive replicability from the part of matter. For form, namely light, infinitely replicates and multiplies itself, so as to extend itself into dimensions and at the same time seize matter along with itself.²⁶

And in *De operationibus solis* Grosseteste writes that

the first light, which is multiplicative and extensive of itself into corporeal dimensions, is corporeity, because corporeity is the active power of threefold dimension.²⁷

—that is, is actively productive of threefold dimension.

These remarks indicate that Grosseteste wished to distinguish corporeity itself from possession of three dimensions: three-dimensions are the *product* of corporeity’s

²⁶ *In Phys* 3 (55-56): “De simplicibus namque <autem Dales> materia non fierent res habentes extensionem et magnitudinem sensibilem, nisi per materiae infinitam super se replicationem, et ista replicabilitas materiae potentia passiva est. ... In sensibilibus etiam est replicabilitas activa formae in infinitum, sicut ex parte materiae est replicabilitas passiva. Forma enim, ut lux, replicat se et multiplicat infinitas, ut se extendat in dimensiones et simul secum rapiat materiam. Et haec replicabilitas formae infinita, quia activa est, bene <unde, Dales> ponitur numerus impar infinitus; impari enim per se accidit indivisibilitas et potentia activa”.

²⁷ *De operationibus solis* (63): “Lux enim prima secundum se sui multiplicativa et extensiva in dimensiones corporeitas est, quia corporeitas est potentia activa triplicis dimensionis”. We may note a subtle shift from *De luce* in *In Phys* and *De operationibus*: in *De luce* light is said to extend matter, but not itself; in the latter two works light is also said to extend itself into dimensions.

self-multiplication, but not the form corporeity itself, which instead is or has the active power to give rise to three dimensions through its self-multiplication.

This conception of corporeity as being or having an active power for three dimensions is a novel and central feature of Grosseteste's account. The interpretations of Avicenna mentioned above do not treat corporeity in this way. The treatment of it as a predisposition for receiving three dimensions instead treats it as being a passive or receptive power, or the basis of such a power, and throws no light on how dimensions in fact are received. And the conception of corporeity as unbounded dimensions (or extension) treats it as neither an active nor a passive power.

There is no indication that Grosseteste distinguished bounded and unbounded dimensions in *De luce* or his two commentaries. Possibly, as I will suggest toward the end of this paper, he ended up employing a distinction with structural parallels to this distinction as a result of considering a puzzle about substance-body in *In Phys*. But he nonetheless shows no awareness of the distinction itself between bounded and unbounded dimensions, and there is no reason to think he would have read Avicenna as working with such a distinction.

More likely he would have understood Avicenna, as Rufus and Averroes do, as positing substantial form, that is, corporeity, in prime matter naturally prior to dimensions at all. But if he did so, he did not adopt a conception of corporeity as a predisposition or aptitude to receive dimensions, as we have seen some commentators on Avicenna do. Indeed, such an account raises philosophical problems. To start with, in the hylomorphic compound of prime matter and corporeity, corporeity is intended to provide a key part of the explanation of how there exist substances extended in three dimensions. But if corporeity is just a capacity or predisposition to receive dimensions, it plays a rather attenuated role. We would still need an account of how it is that this receptive capacity gets exercised so that three dimensions are received, presumably in terms of some external agent bestowing dimensions. Second, it is not clear why the receptive capacity to receive dimensions would be equated with a substantial form or a capacity it has, rather than with a capacity prime matter itself has, since prime matter was typically taken to have receptive potential.

These concerns are obviated by Grosseteste's account. For him corporeity is not a receptive or passive power, and corporeity, though not itself three dimensions, by its very nature of being infinitely self-multiplying necessarily and instantaneously gives rise to dimensions.

So possibly Grosseteste may have arrived at his distinctive conception of corporeity as an infinitely self-multiplying or replicating form to address problems in treating it as a potential to receive dimensions.

It is against this metaphysical background, I believe, that we should approach Grosseteste's understanding of the distinction between *corpus substantia* and *corpus quantitas/quantum*. I now turn to this distinction

Corpus substantia and corpus quantitas

An Early Use of the Distinction and Its Relation to Avicenna

The earliest mention of the distinction between *corpus substantia* and *corpus quantitas* I have found is in a treatment of the category of quantity in a logic text. This text, the *Dialectica Monacensis*, is thought by its editor L. M. De Rijk to have been written in England.²⁸ The dating of this text is controversial, ranging from 1170 to 1220,²⁹ but all datings that have been given would have it precede the works by Grosseteste considered above.

After noting that quantity is divided into continuous and discrete quantity, and that body is a kind of continuous quantity, the author writes:

Body is a quantity measuring in respect of long, broad, and deep. However, substance-body differs from quantity-body, since substance-body is that which is measured in respect of length, breadth, and depth, whereas quantity-body is that which measures in respect of these three. And the three quantities just mentioned are internal to the thing that they measure.³⁰

The relevance of distinguishing two notions of body in a treatment of the *Categories* is because in the *Categories* Aristotle speaks of body both as a substance and as a quantity,³¹ and our author appears concerned to mark this ambiguity in what Aristotle says. The author does not expound exactly what he means in this passage, though it is notable that he speaks of quantity-body as what measures, equating the idea of quantity with that of a measure.

No doubt the distinction between *corpus substantia* and *corpus quantitas* was already in use before the *Dialectica Monacensis*. Abelard, for example, had already made a distinction between what he calls *corpus quantitativum* and *corpus substantiale* in his treatment of the *Categories*,³² and we may suppose that the distinction found in the

²⁸ *Dialectica Monacensis*, edited by L. M. De Rijk, *Logica Modernorum* 2 vols. (Assen: Van Gorcum 1967), II.i, 459–638.

²⁹ See Sten Ebbesen, “Early Supposition Theory II”, *Vivarium* 51 (2013): 60–78, 71.

³⁰ *Dialectica Monacensis* (518): “Corpus vero est quantitas mensurans in longum, latum, et spissum. Differt autem corpus substantia a corpore quantitate, quoniam corpus substantia est id quod mensuratur secundum longitudinem, latitudinem, et spissitudinem. Corpus vero quantitas est id quod mensurat secundum hec tria. Et iam dicte tres quantitates intranee sunt ad rem quam mensurant”.

³¹ See e.g. *Categories* 5.2b1–3, 6.4b22.

³² Peter Abelard, *Glossae super Praedicamenta Aristotelis*, in *Logica ‘ingredientibus’ II*, edited by B. Geyer (Münster i.W: Verlag der Aschendorffschen Verlagsbuchhandlung, 1921), 111–305, 189: “Sicut enim totum corpus suum habet locum sese terminantem et quodammodo ambientem, ita etiam superficies uel linea uel punctum et cum corpus quantitativum uel quaelibet pars eius substantiale corpus tantum terminent et mensurent, ipsa iterum quae mensurant substantialia corpora, locis terminantur et in ipsis tantum proprie et loca sunt nec nisi per ea substantiis subiectis insunt”.

Dialectica Monacensis derived from reflection on the *Categories* among twelfth or early thirteenth-century writers on logic. The distinction continued to be employed in logic texts, notably on the *Categories*. In his commentary on the *Categories*, written at some point in the period 1237-1245,³³ Robert Kilwardby, for example, writes that

Body is said equivocally in [the categories of] substance and quantity. In quantity it means threefold dimension itself, namely quantity-body; in substance, that which determines for itself threefold dimension, namely substance-body.³⁴

Although the chief concern of the logic texts was not the metaphysical nature of substance-body versus quantity-body, it was inevitable that writers would relate this distinction to metaphysical treatments of body of the sort we have noted in Avicenna. And indeed, in a list of chapters to Avicenna's *Liber de philosophia prima* in a late thirteenth-century manuscript owned by Godfrey of Fontaines, treatise 2.2 is described as proposing "what substance-body is and how three dimensions have existence in it".³⁵ Avicenna's definition of body as that in which three dimensions can be posited is also echoed in the presentation by Walter Burley (ca. 1275-1344) of the distinction of substance-body and quantity-body, where he writes that "body in the genus of substance is a substance in which three dimensions can be posited; quantity-body is composed of dimensions".³⁶ Indeed, Kilwardby too also echoes Avicenna's text: "quantity-body differs from substance-body, because substance-body denominates the potential to receive threefold dimension; quantity-body is threefold dimension itself".³⁷

³³ See José Filipe Silva, "Robert Kilwardby", *The Stanford Encyclopedia of Philosophy* (Fall 2021 Edition), edited by E. Zalta: <https://plato.stanford.edu/archives/fall2021/entries/robert-kilwardby/>.

³⁴ Robert Kilwardby, *Notula super librum Praedicamentorum*, edited by A. D. Conti, https://web.archive.org/web/20150420120810/http://www-static.cc.univaq.it/diri/lettere/docenti/conti/Allegati/Kilwardby_praedicamenta.pdf; accessed June 12, 2023), 17: "Dicitur enim "corpus" aequivoce in substantia et quantitate: in quantitate enim dicitur ipsa trina dimensio, scilicet corpus quantitas; in substantia enim id quod determinat sibi trinam dimensionem, scilicet corpus substantia".

³⁵ See *Liber de philosophia prima*, Annexe, 93*.

³⁶ Walter Burley, *Super librum Praedicamentorum*: "[C]orpus est relatam ad corpus substantiam et ad corpus quantitatem. Et adhuc corpus substantia est relatam, quia uno modo est genus et alio modo est altera pars compositi distincti [...] corpus in genere substantiae est substantia in qua possunt poni tres dimensiones. Corpus quantitas est compositum ex dimensionibus. Unde corpus est in genere substantiae, est proprie subiectum corporis in genere quantitatis" (quoted in Alice Lamy, "Les propriétés quantitatives du corps dans le *Traité des formes (pars posterior)* de Gautier Burley", *Cahiers de recherches médiévales et humanistes* 22 [2011]: 511-535, note 46).

³⁷ *Notula* (57): "Differt autem corpus quantitas a corpore substantia, quia corpus substantia denominat potentiam recipiendi trinam dimensionem, corpus quantitas est ipsa trina dimensio". The identification of quantity-body with threefold dimension is also made by Richard Rufus of Cornwall, *Lectura Parisiensis in Sent.* 2, d. 30, q. 6 (ca 1253-1255): "Est autem corpus-substantia et corpus-quantitas; corpus-quantitas accidens est et est ipsa trina dimensio; corpus-substantia aggregatum ex materia et forma, et istud est subiectum corporis-quantitatis" (quoted in G. Gál,

Thus, even if the distinction between substance and quantity-body had originated in logic texts as a way to disambiguate remarks by Aristotle in the *Categories*, it is also employed in treatments of the metaphysics of body. Grosseteste's use of the distinction is a clear example of this metaphysical turn.

The Distinction in Grosseteste

The Commentary on the *Posterior Analytics*

In *In Pan* Grosseteste employs the notions of substance-body or quantity-body in two passages. In the first passage he is briefly considering how in our present fallen state we arrive at the knowledge of a non-complex universal. He holds that in a newborn human being all the powers of the rational soul are seized by the bulk of the body and as if asleep. Reason is awakened, however, through repeated sense experience. Once

awakened, reason begins to divide and view apart what were confused in sense. Sight, for example, confuses color, magnitude, figure and body, taking these as one thing in its judgement, but once awakened, reason divides color from magnitude and figure from body, and further, figure and magnitude from the substance of body. In this way by division and abstraction it arrives at cognition of the substance of body [or of the substance-body] that bears the magnitude, figure, and color.³⁸

“Opiniones Richardi Rufi Cornubiensis a Censore Reprobatae”, *Franciscan Studies* 35 [1975]: 137-193, 173).

³⁸ *In Pan* 1.14 (214): “Ratio vero expergefata incipit dividere et seorsum aspicere que in sensu erant confusa, utpote visus, colorem, magnitudinem, figuram, corpus confundit, et in eius iudicio sunt hec omnia accepta ut unum. Ratio vero expergefata dividit colorem a magnitudine et figuram a corpore et iterum figuram et magnitudinem a corporis substantia, et ita per divisionem et abstractionem pervenit in cognitionem corporis substantie deferentis magnitudinem et figuram et colorem”. A similar passage may be found in Grosseteste's opusculum *De subsistentia rei* (edited by O. Lewry, “Robert Grosseteste's Question on Subsistence: An Echo of the Adamites”, *Mediaeval Studies* 45 [1983]: 1-21, 20: “Amplius, res in se ipsis sunt ita quod substantia sua et quantitas et qualitas secundum essenciam seiuncte sunt, existunt tamen coniuncte; in sensu uero hominis et ymaginatione sunt substantia et quantitas et qualitas per modum vnus, nec percipitur ibi que est secundum essencias seiunctio. In intellectu autem nostro quantitas a substantia et qualitate seorsum accipitur. Non potest tamen intellectus noster hec omnino seorsum intueri, sicut in se ipsis secundum essenciam omnino sunt diuisa; quedam enim semper cum quibusdam commiscet, ut pote colorem, sine dubitatione nequaquam comprehendit”. In this passage, however, Grosseteste notes that the intellect cannot entirely view all these apart, since it must always comprehend color together with dimension (conjecturing ‘dimensione’ for the manuscript's ‘dubitatione’). See also Avicbron, *Fons vitae* 2.4-5, edited by C. Baeumker (Münster: Aschendorffsche Verlagsbuchhandlung, 1895), 33, and, citing Avicbron, Thomas of York, *Sapientiale* 4.17, ed. C. Garvey, 3 vols. (PhD dissertation, University of Toronto, 1951) II, 239.

In this passage Grosseteste appears to treat the substance of body – substance-body – as the subject of the accidents of magnitude, figure, and color. This implies a distinction between the magnitude and other accidents of a body from the substance-body that underlies them as their subject.

This brief reference leaves unspecified just what this underlying substance of body is. Grosseteste hints at an answer, however, later in the commentary in a passage where he briefly discusses points, lines, surfaces, and quantity-bodies.³⁹ Here he explains quantity-body (*corpus quantum*) in terms of form and matter. The context of his discussion is Aristotle's reference to a unit as a substance without position (*substantia absque situ*) and a point as a substance over which an indivisible position is added (*cui superadditur situs*). Grosseteste notes that Aristotle gives an example about a unit and point, as if a unit is a simpler thing because it is a substance without a position, while a point is a substance over which is added a position.⁴⁰ Grosseteste then claims that a number is the same essence replicated, but made other and other by the replication, while a unit is an essence replicable in respect of itself. This self-replication,⁴¹ Grosseteste says, is a sort of self-begetting. At this point Grosseteste turns to corporeal things. In their case prime matter and first form are in themselves simple without

³⁹ In *PAn* 1.18 (258): "Ponit autem exemplum de unitate et puncto, quasi unitas sit res simplicior, quia est substantia absque situ; punctum vero est substantia cui superadditur situs. Ad huius intelligentiam dico, ut loquar de unitate numeri et substantia eius, quod numerus est essentia eadem replicata, replicatione tamen facta altera aut alia, et unitas est essentia secundum se replicabilis, non replicat autem se nisi se quodammodo gignens. In rebus autem corporalibus invenimus quod materia prima et forma prima in seipsis sunt simplices sine situ et magnitudine, sed he infinities se replicantes et quodammodo gignentes extendunt se in magnitudinem et situm. Natura ergo prime materie et prime forme in se ipsa simplex et essentia secundum se replicabilis nature unitas est. Eadem essentia cum habuerit super se situm indivisibilem punctum est; cum ergo habuerit super se situm divisibilem secundum viam unam linea est, cum vero secundum vias duas superficies et cum secundum vias tres corpus quantum est".

⁴⁰ It is interesting to note how Grosseteste's description of a unit and a point seems to draw on both James of Venice's translation of the *Posterior analytics* and Gerard of Cremona's, following Gerard's use of the word 'situs' rather than James' use of 'positio', but James' use of the word 'substantia' rather than Gerard's use of 'essentia'. Thus, Gerard's translation defines a unit as "essentia cui non est situs" and a point as "essentia cui est situs" (*Analytica posteriora*, in *Aristoteles Latinus* IV 1-4, edited by L Minio-Paluello and B. G. Dod [Bruges and Paris: Desclée de Brouwer, 1968], 240), using the terms 'situs' and 'essentia'. James' translation defines them (p. 60) respectively as "unitas substantia est sine positione, punctum autem substantia posita", using the terms 'substantia' and 'positio'. It seems to me likely that when a little later in this passage Grosseteste starts to use the term 'essentia' it is being used interchangeably with 'substantia'.

⁴¹ While Grosseteste speaks of multiplication in *De luce*, in the two commentaries he more often uses the notion of replication (*replicatio*). For the purposes of this paper this does not seem to be important and I will speak in both ways in what follows.

position or magnitude, but in infinitely replicating and in some manner begetting themselves they extend themselves into magnitude and position.⁴²

From these remarks Grosseteste draws the conclusion: “Natura ergo prime materie et prime forme in se ipsa simplex et essentia secundum se replicabilis nature unitas est”. I have left this in the original Latin, since it is not altogether clear how to translate it. Here, as is often the case in interpreting Grosseteste’s brief remarks, we must conjecture as to his meaning. I suggest that what he has in mind is that first form and matter fit the description he had just given of a unit as simple and yet replicable. He seems to be using the word ‘essentia’ here as equivalent to ‘substance’ and is, I believe, making the point that the substance that is the compound of first form and matter can be treated as a unit. He then immediately goes on to note how the same essence that is a unit is a point when it has an indivisible position over it; a line, when it has over it a position divisible according to a single direction; a surface, when it has over it a position divisible according to two directions, and a quantity-body, when it has over it a position divisible according to three directions. If I am right, he means that the composite substance (or essence) comprised of first form and prime matter, as it exists under position in zero, one, two or three dimensions, is a point, line, surface, or quantity-body respectively. So on this interpretation, quantity-body appears to be the composite of prime matter and first form as it exists under position divisible in three dimensions.

Although Grosseteste does not mention the contrasting notion of substance-body here, if we understand quantity-body in the way I have suggested, it is plausible to think that he understood substance-body to be the composite of prime matter and first form as such – an interpretation given further support by consideration of his discussion in *In Phys.*

The Commentary on the *Physics*

Grosseteste’s most extensive reference to the substance-body/quantity-body distinction is in his treatment of *Physics* 1.2. Here he takes off from a remark made by Aristotle that if the monists’ doctrine that all things are one means that what exists is something continuous, the one will be many, since continuous things are divisible

⁴² Grosseteste’s description of prime matter and first form as extending themselves into magnitude and position by infinitely replicating and in some manner begetting themselves should probably not be taken to mean that prime matter itself is literally self-replicating and begetting. Rather, it is replicated and begotten by the action of first form, for Grosseteste elsewhere takes prime matter to be purely passive and it is the function of first form or corporeity to extend prime matter. On the passivity of prime matter see *De motu corporali et luce* (90): “Nec materia prima est efficiens motum, quia ipsa est passiva solum”; *De statu causarum*, edited by L. Baur, *Die philosophischen Werke des Robert Grosseteste Bischofs von Lincoln* (Münster i.W.: Aschendorffsche Verlagsbuchhandlung, 1912), 120-126, 122 “Materia enim, cum solum sit potentia, omnino habet oppositum <recte: oppositionem> ad actum, non solum secundum rationem, sed etiam secundum naturam rei”.

without limit. This leads Grosseteste to take up “a very deep doubt”. Holding that it is clear that there is a multitude of quantitative parts in a continuous thing, he asks whether in the whole and parts of the continuous thing – by which he has in mind a body – “there is a multitude in respect of substance”. He frames the following discussion in terms of the notion of substance-body.

Grosseteste presents the “very deep doubt” as follows:⁴³

Since quantity is an accident with which abstracted the substance of body is simple and lacking dimensions, the very substance of body in itself is seen in the minute parts [of a continuum]. And just as the whole substance of the soul is in each minute part of the body, so the whole substance of body [is] under each minute part of the quantity, neither other or larger or smaller under one minute part of the quantity than under another, whether [that part] should be continuous with or standing apart [from the other]. So in respect of substance even parts that stand apart appear to be entirely the same. For if it is magnitude that essentially (*per se*) admits division, substance-body (*corpus-substantia*) will only admit division in the way the son of Diares [admits] vision [*De an.*, 418a20],⁴⁴ or else, besides the magnitude that is an accident of body, substance-body will have a substantial magnitude.

Again, if we propose a quantum and mark out its halves, either the same substance-body that is under one half is under another, or another [substance-body]. If the same, then I have the point sought. If another, then the whole substance-body that is under the whole magnitude has in itself different parts, and so in itself it is divisible, and so a quantity enters the substance of body besides the magnitude that is accidental.

⁴³ *In Phys* 1 (ed. Dales, 8-9): “Quod in continuo sit multitudo partium quantitivarum, manifestum est. Verumtamen profundissima est dubitatio an in toto et in partibus sit multitudo secundum substantiam. Cum enim quantitas sit accidens quo abstracto <qua abstracta Dales> substantia corporis simplex est et dimensionibus carens, ipsa substantia corporis in seipsa in particulis videtur. Et sicut tota substantia animae est in qualibet particula corporis, sic tota substantia corporis sub qualibet particula quantitatis, nec alia aut maior aut minor sub una particula <parte Dales> quantitatis quam sub alia, sive sit continua sive distans <sit ... distans> sint contigua sive distantia Dales>. Quapropter secundum <per Dales> substantiam videntur esse penitus idem, etiam partes distantes. Si enim magnitudo per se suscipiat divisionem, non suscipiet corpus-substantia divisionem, nisi sicut Diarii filius visionem <Diarii ... visionem> divisionem accidentalem Dales>, aut <Et sic Dales> praeter magnitudinem accidentem corpori erit corpori-substantiae magnitudo substantialis. Item, proposito quanto et significatis eius medietatibus, aut idem <illud Dales> corpus-substantia quod est sub una <substantia add. Dales> medietate est sub alia, aut aliud. Si idem, habetur propositum. Si aliud, tunc totum corpus-substantia quod est sub tota magnitudine in seipso habet partem et partem <et partem om. Dales>, et ita secundum se est divisibile, et ita quantitas ingreditur corporis substantiam praeter magnitudinem accidentalem”.

⁴⁴ That is, the son of Diares is only incidentally an object of vision inasmuch as an accident of him, his color, is properly visible. Likewise, substantial-body is only incidentally divisible in that an accident of it, its magnitude, is properly divisible.

In these two paragraphs Grosseteste seems to be assuming that substance-body, as it is in itself apart from the accident of magnitude, is simple and dimensionless. He takes this to imply that as it is in itself it lacks magnitude and parts, by which he means quantitative or integral parts.⁴⁵ But just what deep doubt Grosseteste finds in this view is left rather obscure. Certainly, he notes that an alternative view is to hold that substance-body as it is in itself, as distinct from the magnitude that is a quantity and hence an accident, has a substantial magnitude and parts. But simply to mention this alternative conception of substance-body is not as such to indicate a problem in the former conception. Why not just take numerically the same simple substance-body to be under each of the different parts of a continuous magnitude – the view the first paragraph presents?

Presumably Grosseteste saw some pressure to adopt the view that substance-body does have a substantial magnitude and parts, a view that did not accord with his conception of substance-body in itself as lacking magnitude and parts. What was this pressure? I suspect his concern was that if numerically the same substance-body is the subject of different quantitative parts of a body, then numerically the same substance-body will be the subject of incompatible accidents of different kinds belonging to these parts, or of distinct accidents of exactly the same kind, both of which may seem to be impossible. For example, in the case of the body divided into halves A and B, numerically the same substance-body would be the subject of this accident of quantity, say, of being two cubits, belonging to A, but also of that numerically distinct accident of being two cubits belonging to B, despite the fact that these accidents are of exactly the same kind.⁴⁶ Likewise, substance-body underlying the first two thirds of a 3-cubit body would have the quantitative accident of being two cubits, while also that of being one cubit, since it would also underlie the other third – but these are incompatible determinations.

That Grosseteste has something like this in mind is suggested by his noting a little later in his text the view of those monists who in fact held (as Grosseteste seems to

⁴⁵ Substance-body, I shall argue, is the compound of first form and prime matter, and as such it has form and matter as parts, but these are what medieval thinkers call substantial parts, not quantitative or integral parts.

⁴⁶ We find this line of argument later in the mid-thirteenth century in Geoffrey of Aspill's *Questions on Aristotle's Physics Part 1* (edited by S. Donati and C. Trifogli [Oxford: Oxford University Press, 2017], 284). Take a continuum divided into two halves: "either one quantity is other than the other quantity, or it is not. And clearly they are two quantities. But to different accidents of the same kind correspond different subjects; therefore, the quantities have different subjects. But a quantity only has substance or matter as a subject; so substance's divisibility into parts is other than quantity's divisibility into parts" ("aut una quantitas est alia ab alia quantitate aut non. Et constant quod sunt duae quantitates. Sed diversis accidentibus eiusdem speciei diversa respondent subiecta; aliud ergo est subiectum unius quantitatis et alterius. Sed quantitas non habet subiectum nisi substantiam sive materiam; alia ergo est partibilitas substantiae a partibilitate quantitatis").

understand Aristotle's discussion of the *physici*) that substance-body is numerically one and the same everywhere. On this view, Grosseteste notes, if substance-body has an additional substantial form somewhere – say, igneity – it seems it must have it everywhere, lest numerically one and the same substance-body have the contradictory feature of both having and not having the form in question.⁴⁷ To avoid this conclusion, these thinkers held that every corporeal substance exists everywhere, and in this sense denied that there is a multitude of substances divided from one another – there is not, for example, fire here but not there and a different substance from fire there and not here.

So there appears to be a general problem of accommodating the numerical oneness of simple and dimensionless substance-body, either everywhere within a continuous body, or everywhere in the physical world, with the distinct quantitative accidents of the parts of bodies it underlies,⁴⁸ or with the presence of differing substantial forms at different places.⁴⁹

Now, we would not face this problem if substance-body in itself had distinct parts and magnitude, apart from the magnitude that is an accident, since distinct accidents

⁴⁷ *In Phys* 1 (ed. Dales, 15): “Modus quo physici dixerunt <dicunt Dales> omnia esse unum bifurcatur. Quidam enim intellexerunt quod sicut anima est unica <una Dales>, simplex et indivisa tota in qualibet corporis particula <parte corporis Dales>, sic corpus-substantia vel ignis vel aer vel terra vel aqua vel aliquid medium inter haec, cum quodlibet horum in sua substantia et essentia sit simplex, carens in se dimensione, secundum se totum est sub qualibet particula magnitudinis, et ita corpus-substantia unum et idem numero ubique. Et etiam hoc posito, si super corporeitatem addatur alicui alia forma substantialis – utpote igneitas – sequitur quod eadem igneitas sit ubique ubi est corporeitas. Aliter enim, cum corporeitas sit simplex, tota una et eadem ubique sub magnitudine, oporteret quod idem numero participaret et non participaret igneitate. Sequitur ergo quod si corporeitas alicubi habeat secum igneitate, et habeat eam ubique, et ita, ut videtur, fit ignis. Similiter si alicubi sit aer, quod ubique; et ita de ceteris. Omnis igitur substantia corporea quae alicubi est, secundum substantiam totam [est] ubique, et ita omnia unum”. We may note that this passage seems to endorse some version of the doctrine that corporeal substances are comprised of a plurality of substantial forms, with corporeity as the most fundamental form.

⁴⁸ As well as, we may note, distinct non-quantitative accidents.

⁴⁹ We see a version of this issue in Averroes' *De substantia orbis* (fol. 4rb-va): “... commune subiectum, quod nullam habet propriam formam: sed est potentia recipiens numerum secundum formas diversas in specie, et numerum secundum formas diversas in numero, et quae sit secundum maius, et minus. Et causa huius totius est, quod hoc subiectum recipit primitivum dimensiones interminatas, et quia est multum in potentia. Quoniam si non haberet dimensionem, non reciperet simul formas diversas numero, neque formas diversas speci[e], sed in eodem tempore non invenietur, nisi una forma”. Averroes here holds that prime matter first receives unbounded dimensions, because if it did not, it would not simultaneously receive numerically diverse forms, or forms of different kinds, but at the same time only one form would be found. In other words, according to Averroes prime matter must have indeterminate dimensions prior to substantial form, if there is to be a multiplicity of substances in the world. See Pasnau, *Metaphysical Themes*, 62-63.

or substantial forms could then have numerically distinct parts of substance-body as their subjects. But we have seen Grosseteste hold that substance-body in itself is simple, without magnitude and parts. And Grosseteste will not give up this view. Rather, he will exploit the peculiar nature of substance-body as a composite of prime matter and infinitely self-replicating corporeity to solve the problem.

Thus, Grosseteste starts his reply to the problem he raises as follows:⁵⁰

In my opinion substance-body in a way is the same in the diverse parts of a continuum, but not absolutely the same. For prime matter and first form by their infinite replication beget quantity-body. And in the manner in which the substance of the begetter in some way is one in all those begotten by him, so the essence of first form and matter is one everywhere in a body, yet by its infinite replication of itself it becomes infinitely other and other, just as those begotten are other than the begetter and one another.

This passage suggests that Grosseteste is treating talk of “prime matter and first form” as equivalent to that of substance-body, since he moves immediately from talk of the otherness of substance-body to that of the essence of first form and matter. He would therefore seem to be treating substance-body as their composite,⁵¹ whereas quantity-body is the product of their infinite replication, this replication amounting to the infinite replication of their composite, substance-body.

Grosseteste then presents his response to the deep doubt:

And just as the soul is not divided into parts in its essence when the body is divided into parts, so nor would substance-body be divided into parts in its essence with magnitude divided into parts, unless substance-body by the infinite replication of itself under the infinite parts of magnitude were other and other.

Here Grosseteste concedes that in a continuous magnitude substance-body is different under the different parts of the magnitude and does have a substantial magnitude distinct from accidental magnitude. This is due to the fact that substance-

⁵⁰ *In Phys.* 1 (ed. Dales, 9): “Opinor quod corpus-substantia secundum quid idem est in diversis partibus <et add. Dales> continui <continuum Dales>, simpliciter <similiter Dales> autem non idem. Materia enim prima et forma prima sui replicatione infinita corpus-quantum gignunt. Et eo modo quo substantia gignentis aliquo modo est una in omnibus genitis ab ipso, sic essentia primae formae et materiae una est ubique in corpore, sui tamen replicatione infinita fit infinities alia et alia, sicut alii sunt geniti a gignente et a se invicem. Et sicut non partitur anima in sui essentia partito corpore, sic nec partiretur corpus-substantia in sui essentia partita magnitudine, nisi corpus-substantia infinita sui replicatione sub infinitis partibus magnitudinis esset alia et alia”.

⁵¹ This, we may note, accords with the understanding of substance-body in some thinkers writing around the mid-thirteenth century. Richard Rufus (see note 37 above) describes substance-body as the aggregate of matter and form. Robert Kilwardby in *De ortu scientiarum* 29.245 (edited by A. Judy [London: The British Academy, 1976], 92) identifies substance-body as a substance composed of matter and corporeal form.

body is infinitely replicated under the accidental magnitude. This infinite replication gives rise to a substantial magnitude and parts in substance-body. But substance-body in itself, as unreplicated, lacks magnitude and parts. Grosseteste implies that if substance-body were not infinitely replicated, we would have to treat it in a manner akin to the soul, according to which the soul as a whole exists in each part of the body. But this conception of substance-body was precisely the view that raised the doubt Grosseteste is considering.⁵²

Likewise, in response to the position of those *physici* who cannot admit different substances in different places, Grosseteste responds:

Their opinion would be true unless substance-body were in some manner the same and in some manner different in the different parts of a magnitude, just as light here and there is different as begetter and begotten, and yet in some manner the same, because the substance of the begetter and begotten cannot be entirely diverse.⁵³

We must therefore distinguish three things: substance-body in itself, which lacks magnitude and dimensions; the *substantial* magnitude of infinitely replicated substance-body; and the *accidental* magnitude infinitely replicated substance-body underlies. The need to make this distinction helps to throw light on a passage in *In Phys* 3 where Grosseteste considers created infinite number:

Created infinite number is found, first, in the simple essence of matter or form able to be replicated infinitely without limit; second, in the replicated essence itself of matter or form; third, in the infinitely divisible corporeal dimension introduced by the infinite replication of matter and form; and perhaps here in this third place, number in a strict sense refers to an accident, whereas the former two numbers are instead substances.⁵⁴

⁵² Note that the soul's being everywhere in the body does not raise the problems we have been considering of numerically the same item being the subject of accidents or substantial forms, since the soul is not in each part of a body as a subject in which corporeal forms inhere, whereas substance-body is such a subject. See *De intelligentiis* (edited by L. Baur, *Die philosophischen Werke des Robert Grosseteste Bischofs von Lincoln* [Münster i.W.: Aschendorffsche Verlagsbuchhandlung, 1912], 112-119) for Grosseteste's views on how the soul exists in the body in a manner akin to the way God exists as a whole everywhere in the world – a matter, he notes (113), whose investigation “sit supra nos”.

⁵³ *In Phys* 1 (ed. Dales, 16): “Horum opinio vera esset nisi corpus-substantia aliquo modo esset eadem et aliquo modo alia et alia in diversis partibus magnitudinis, sicut lux hic et ibi alia et alia est sicut gignens et genitum, et tamen aliquo modo eadem, quia gignentis et geniti substantia non potest omnino esse diversa”.

⁵⁴ *In Phys* 3 (ed. Dales, 56-57): “Numerus namque infinitus creatus primo reperitur in essentia simplici materiae vel forme possibili replicari infinities in infinitum; secundo in ipsa essentia materiae vel formae replicata; tertio in dimensione corporali divisibili in infinitum, quam dimensionem induxit replicatio materiae et formae infinita; et forte hic tertio numerus proprie dicitur accidens, priores vero duo numeri sunt magis substantiae”.

Here Grosseteste distinguishes between the infinitely replicable simple essence of matter or form; the (infinitely) replicated essence of matter and form; and the infinitely divisible corporeal dimension introduced by this infinite replication. Notably, he speaks of infinite number in the first two cases as substances, but of infinite number in the case of the infinitely divisible bodily dimension as an accident. Grosseteste seems to be thinking here of infinitely replicated matter and form, as well as the simple essence of matter and form itself, as pertaining to the category of *substance*, but of corporeal dimensions as *accidents*. And since substance-body just is the composite of matter and form, it too, both as unreplicated as it is in itself, and as infinitely replicated, belongs to the category of substance, while corporeal dimension belongs to the category of accident. This corporeal dimension, I would suggest, is the accidental magnitude Grosseteste had spoken of when he raised the deep doubt about substance-body.

Thus, the picture Grosseteste appears to end up with is that substance-body is the composite of prime matter and first form (corporeity). Like its components, substance-body in itself, *as unreplicated*, is simple, without magnitude, integral parts, or dimensions. But in virtue of its infinitely self-replicating component form corporeity, substance-body is necessarily infinitely replicated. This replication gives rise to a substantial magnitude and parts in infinitely replicated substance-body. These parts are the subjects of diverse accidents or diverse substantial forms. In particular, it is precisely due to the infinite replication of substance-body that the accidents of infinitely divisible corporeal dimension arise. As for quantity-body, it is plausible to take it to be this corporeal dimension, or perhaps to be substance-body as under three dimensions, as I suggested he may have been thinking of it in *In Pan*.⁵⁵

Now, it is natural to ask at this point what the distinction between infinitely replicated substance-body and corporeal dimension amounts to. As with so many issues in Grosseteste, we can do little more than conjecture, but an intriguing possibility suggests itself. This is the possibility that Grosseteste wishes to draw a distinction between magnitude and dimensions, or, we might say, between extension and dimensions. Infinitely replicated substance-body has magnitude and extension, but we must distinguish this from its having dimensions. The magnitude in question is substantial in nature, the dimensions are accidents in the category of quantity, but the possession of such accidents requires the presence of substantial magnitude and extension. If I were to press this issue further, way beyond anything Grosseteste's text says, I would conjecture that for him the notion of dimension brings with it the idea of measuring, in a way the notion of extension does not.

There is at least a structural parallel here between the view Grosseteste arrives at and the sort of view Lammer attributes to Avicenna: to Grosseteste's substantial magnitude seem to correspond indeterminate extension (or dimensions), while to

⁵⁵ As the passages from Kilwardby and Rufus quoted above in note 51 indicate, it was not uncommon to identify quantity-body simply with three dimensions.

Grosseteste's corporeal dimensions seem to correspond determinate dimensions. But there is a key difference. Because Grosseteste conceives of corporeity as an infinitely self-replicating form, he has the resources to maintain the view that corporeity itself is not three-dimensions (determinate or indeterminate), magnitude or extension. He can maintain the view that corporeity naturally precedes magnitude and dimensions, and that substance-body, the composite of prime matter and corporeity, also naturally precedes magnitude and dimensions. At the same time, because he treats corporeity, prime matter, and substance-body as infinitely replicable, he can posit an indeterminate non-accidental magnitude or extension prior to accidents and to other substantial forms besides corporeity. This non-accidental magnitude is due to the infinite replication of substance-body, which itself is due to the infinite replication of prime matter and corporeity. In this way he can both adopt the view Rufus attributes to Avicenna, that substantial form – namely corporeity – precedes dimensions in prime matter, but also posit, prior to other substantial forms and to accidents, an extended subject (infinitely replicated substance-body) that through its parts serves to underlie the multiplicity of distinct substances in the physical world and distinct accidents in the different parts of a single body. In this way, his conception of corporeity as a self-replicating form enables him to stake out a very distinctive position regarding the nature of body.

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