

DIVERGENT RECONSTRUCTIONS OF ARISTOTLE'S TRAIN OF THOUGHT: ROBERT GROSSETESTE ON PROCLUS' *ELEMENTS OF PHYSICS*

RECONSTRUCCIONES DIVERGENTES DEL HILO DE IDEAS DE ARISTÓTELES: ROBERTO GROSSETESTE ACERCA DE LOS *ELEMENTOS DE FÍSICA* DE PROCLO

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Abstract

The present paper discusses Grosseteste's reception of Proclus' *Elements of Physics* (*EP*) in his *Commentary* on Aristotle's *Physics* VI. In the first section I examine the method with which Grosseteste reconstructs Aristotelian texts. The second section initiates a study of the way Grosseteste evaluates Proclus' *EP* on the basis of this method. Thus, the third section brings out Grosseteste's moderate criticism of Proclus' treatment of certain Aristotelian *conclusiones* and assumptions. The fourth section extends this study to the conceptual relation between contiguity, continuity and succession. Finally, Grosseteste's evaluation of Proclus' tendency to omit, divide and merge Aristotelian *conclusiones* is studied in the fifth section. I conclude that Grosseteste is a careful and moderately critical reader of Proclus. He aptly grasps the dependence of the *EP* on *Physics* VI and conceives of Proclus' *EP* as a forerunner of his own method of reconstructing Aristotelian texts.

Keywords

Proclus; *Elements of Physics*; Axiomatic Method; Aristotle; *Physics*

Resumen

El presente artículo analiza la recepción de los *Elementos de Física* (*EP*) de Proclo por parte de Grosseteste en su Comentario a la *Física* de Aristóteles VI. En la primera sección examino el método con el que Grosseteste reconstruye el texto aristotélico. En la segunda sección inicio el estudio sobre la manera en la cual Grosseteste evalúa los *EP* de Proclo basándome en su propio método. En consecuencia, la tercera sección destaca la crítica moderada de Grosseteste al tratamiento de Proclo sobre ciertas *conclusiones* y suposiciones aristotélicas. La cuarta sección

amplía este estudio hacia la relación conceptual entre contigüidad, continuidad y sucesión. Finalmente, la quinta sección estudia la evaluación de Grosseteste sobre la tendencia de Proclo a omitir, dividir y combinar las *conclusiones* aristotélicas. Concluyo que Grosseteste es un lector cuidadoso y moderadamente crítico de Proclo. Grosseteste hábilmente capta la dependencia de EP de la *Física* VI, y concibe EP de Proclo como precursor de su propio método para reconstruir textos aristotélicos.

Palabras clave

Proclo; *Elementos de Física*; método axiomático; Aristóteles; *Física*

1. A Method for Reconstructing Aristotle's Argumentative Structure

It is difficult to underestimate the role played by Robert Grosseteste in the dissemination of Aristotle's work in the Latin West and primarily of his theory of knowledge, as expounded in his *Posterior Analytics*.¹ His *Commentary on the Posterior Analytics* constitutes a milestone in the history of the reception of the *Posterior Analytics* as “the earliest medieval work on this Aristotelian treatise that has been handed down to us”.² Besides, “the most original and intriguing feature of this commentary is the way in which it explicates Aristotelian epistemology within a framework of [Augustinian] illumination”.³ What is equally attractive in the *Commentary*, as well as in Grosseteste's *Commentary on the Physics* (1228-1232), is the method whereby Grosseteste

¹ KU Leuven – Internal Research Funds. I would like to thank the two referees for their constructive remarks and Guillermo Javier Ruz Troncoso for his help with the Spanish.

² Pietro B. Rossi, “Grosseteste's Influence on Thirteenth-and Fourteenth Century British Commentators on *Posterior Analytics*. A Preliminary Survey”, in *Robert Grosseteste. His Thought and Its Impact*, edited by J. Cunningham, Papers in Medieval Studies 21 (Toronto: Pontifical Institute of Medieval Studies, 2012), 141. See also: James McEvoy, *Robert Grosseteste* (New York: Oxford University Press, 2000), 85. For the critical edition, see: Robertus Grosseteste, *Commentarius in Posteriorum Analyticorum Libros*, edited by P. Rossi, Corpus Philosophorum Medii Aevi. Testi e Studi 2 (Firenze: Leo S. Olschki, 1981). For a summary of Grosseteste's approach, see: Pietro Rossi, “Introduzione to Robertus Grosseteste”, in *Commentarius in Posteriorum Analyticorum Libros*, edited by P. Rossi, Corpus Philosophorum Medii Aevi. Testi e Studi 2 (Firenze: Leo S. Olschki, 1981), 22-25. Scholars estimate that Grosseteste's *Commentary on the Posterior Analytics* must have been written between 1220 and 1230. See, for example: Pietro B. Rossi, “Magna magni Augustini auctoritas: Roberto Grossatesta e i Padri”, in *Ipsium verum non videbis nisi in philosophiam totus intraveris. Studi in onore di Feanco De Capitani*, edited by F. Amerini and S. Caroti, Quaderni di Noctua 3 (IT: E-Theca, 2016), 458; James McEvoy, “The Chronology of Robert Grosseteste's Writings on Nature and Natural Philosophy”, in James McEvoy, *Robert Grosseteste, Exegete and Philosopher* (Hampshire: Variorum, 1994), 637.

³ Christina Van Dyke, “An Aristotelian Theory of Divine Illumination: Robert Grosseteste's *Commentary on the Posterior Analytics*”, *British Journal for the History of Philosophy* 17/4 (2009): 685; Rossi, “Introduzione to Robertus Grosseteste”, 12.

comments on Aristotle's text.⁴ In general terms, the method deployed in both *Commentaries* lies in the use of certain structuralizing tools, namely, definitions, suppositions and conclusions/theorems. It is by their use that Grosseteste divides and reconstructs Aristotle's argumentation, exposing it in a more rigorous and ordered form. One such example may be found in his adaptation of *Posterior Analytics* 1.2. Recent scholarship has delved into it, pointing to the way Grosseteste divides Aristotle's insights into definitions and suppositions.⁵ These are brought together in order to ground the conclusion that "demonstrative science is based on principles/premises that are true, primary, immediate, as well as prior to, better known than and causes of the conclusion".⁶

Bloch suggests that Grosseteste's aim is to unearth the implicit logical structure of the work. In providing this clear-cut text structure he wishes to facilitate one's appropriation of the *Posterior Analytics*. The same strategy is adopted in his *Commentary on the Physics*. Once again, Aristotle's arguments are reconstructed in terms of definitions, suppositions and conclusions. Neither of the two *Commentaries*, however, goes so far as to fully apply the Euclidian method of exposition and thereby officially visualize the distinction between the initial assumptions (definitions and suppositions) and the conclusions by collecting the totality of the former in a separate introductory section.

Even so, Grosseteste's practice justifiably draws the attention of anyone interested in the geometrical method of presentation and, more particularly, in all undertakings to 're-write' and re-present an authoritative text with the aim to bring out its inherent (but not always conspicuous) logical merits and in a way compatible with the technical conventions pertaining to the geometrical method of exposition. Proclus, after all, famously inaugurated this tradition with his *Elements of Physics*.⁷ In terms of content,

⁴ Cecilia Trifogli, *Oxford Physics in the Thirteenth Century (ca. 1250-1270). Motion, Infinity, Place & Time* (Leiden: Brill, 2000), 30.

⁵ Grosseteste, *Commentarius in Posteriorum Analyticorum Libros*, 99,3-5: "In hoc libro docere primo ponens duas diffinitiones et unam suppositionem, ex quibus consequenter concludit primam conclusionem huius scientie". For an interesting case study related to the reception of the definitions and conclusion extracted by Grosseteste from *Posterior Analytics* 1.2, see: Rossi, "Grosseteste's Influence on Thirteenth- and Fourteenth-Century British Commentators on *Posterior Analytics*", 155-166.

⁶ David Bloch, "Robert Grosseteste's Conclusions and the Commentary on the *Posterior Analytics*", *Vivarium* 47/1 (2009): 6. See also: Pietro B. Rossi, "Robert Grosseteste and the Object of Scientific Knowledge", in *Robert Grosseteste: New Perspectives on His Thought and Scholarship*, edited by J. McEvoy (Turnhout: Brepols, 1995), 63-64.

⁷ Proclus, *Institutio Physica*, edited by A. Ritzenfeld, *Bibliotheca Scriptorum Graecorum et Romanorum Teubneriana* (Leipzig: Teubner, 1912). For its medieval translation, see: Proclus, *Elementatio Physica*, edited by H. Boese, *Die Mittelalterliche Übersetzung der Στοιχειώσις Φυσική des Proclus*, Deutsche Akademie der Wissenschaften zu Berlin. Institut für Griechisch-Römische Altertumskunde. Arbeitsgruppe für Hellenistisch-Römische Philosophie, 6 (Berlin: Akademie-Verlag, 1958). When I cite the *EP*, I translate the text myself from Ritzenfeld's edition, unless

this axiomatic text is wholly dependent on Aristotle's *Physics* VI and VIII as well as on *De Caelo* I.⁸ The two books that make up the *EP* only include definitions or hypotheses and theorems (i.e., conclusions), which Proclus extracts from Aristotle, even though in the *Physics* they are not qualified as such, namely, as definitions and theorems. Proclus organizes the Aristotelian material in successive theorems, following the method of the geometers. In each of the two books, these theorems are preceded by a series of definitions, that is, first principles, which are then explicitly used and combined for the demonstration of the subsequent theorems. Some of the more advanced theorems are demonstrated both through definitions and previously established theorems. Proclus' innovation, as it were, lies in that he attributes a much more formulaic character to Aristotle's arguments, since the latter are presented as the conclusion unmistakably resulting from certain starting points, that is, the definitions, and the theorems already demonstrated. In Aristotle's text, one finds a solid, but not technically organized, argumentation, that is, no formal distinction between the first principles and the theorems in distinct sections.⁹

As already mentioned, Grosseteste does not fully adopt the geometrical method of the mathematicians neither Proclus' twofold model in the *EP*, which summons definitions and conclusions. However, his methodology in the two *Commentaries* testifies to the fact that he does subscribe to the fundamental assumption that an epistemic account should be organized into explicitly identified and recognizable first principles and conclusions or theorems that derive both from the former and from previously established conclusions. This is one of the most essential and indispensable features of the tradition shared by Euclid and Proclus (and by the Classical Model of Science, more generally).¹⁰ Grosseteste's practice, despite its insufficient compliance with the formal requirements of Euclid and Proclus, is aligned with this, as it were, *vision* of exposition.

In fact, there are certain additional reasons why Grosseteste can be legitimately connected with the axiomatic method. The first is that this method, as described above, is not occasionally used just in the context of his commentaries or in his non-religious, say, 'secular' scientific expositions, but informs his purely theological inquiries as

otherwise mentioned. The first number after the title stands for the book and the second for the proposition of Proclus. Any additional numbers refer to the page and lines of Ritzenfeld's edition.

⁸ Dmitri Nikulin, "Physica More Geometrico Demonstrata: Natural Philosophy in Proclus and Aristotle", *Proceedings of the Boston Area Colloquium in Ancient Philosophy* 17 (2003): 184; Jan Opsomer, "The Integration of Aristotelian Physics in a Neoplatonic Context: Proclus on Movers and Divisibility", in *Physics and Philosophy of Nature in Greek Neoplatonism. Proceedings of the European Science Foundation Exploratory Workshop (Il Ciocco, Castelvechio Pascoli, June 22-24, 2006)*, edited by R. Chiaradonna and F. Trabattoni, *Philosophia Antiqua* 115 (Leiden and Boston: Brill, 2009), 193.

⁹ Dominic J. O'Meara, *Pythagoras Revived. Mathematics and Philosophy in Late Antiquity* (Oxford: Clarendon Press, 1989), 177-179.

¹⁰ Willem R. de Jong and Arianna Betti, "The Classical Model of Science: A Millennia-Old Model of Scientific Rationality", *Synthese* 174/2 (2010): 185-203.

well.¹¹ More concretely, according to Grosseteste, theology takes the Bible (and not so much its subsequent interpretation) as the most authoritative source for its development. This is so because it includes the much wanted *lapides vere fundamentales*, the reliable foundations on which the discipline of theology can be built. This is why he advised all lecturers of Oxford to start their lectures with the Bible and “keep morning hours” for its reading. The priority of the Bible over the subsequent teaching material is not only temporal, but also epistemological. Everything that is taught or discussed afterwards is subordinate to the ‘axioms’ of faith, to the initial *lapides*. This teaching strategy echoes the priority of the first principles in a theorematic exposition, wherein the first principles ground the subsequent theorems. This teaching strategy constitutes a very telling visualization of the way an axiomatic system is supposed to function, regardless of whether philosophy or theology is at stake. *Lapides* obviously serve the role of first principles in the Euclidian tradition; they constitute the undemonstrated primary assumptions that provide the basis for all the claims that are subsequently built upon them. Flawless foundations come first; their priority is indispensable, for only this order can guarantee the epistemic soundness of the field.¹² Here, axiomaticity is not just a scholarly approach or a method of exposition, but an educational practice and a guide to the accomplishment of spiritual life.

The second reason is even more significant. In his *Commentary* on *Physics* VI Grosseteste proceeds to an almost step by step and occasionally moderately critical reconstruction of Proclus’ appropriation of *Physics* VI in his *EP*, 1.¹³ Grosseteste most probably had access to the medieval translation of Proclus’ text, which was produced in the context of the Sicilian school of the 12th century by a translator who remains anonymous.¹⁴ It would not be an exaggeration to say that in fact Grosseteste’s *Commentary* on *Physics* VI is nothing but a commentary on *EP*, 1. This commentary is not continued in Grosseteste’s section on *Physics* VIII, even though Proclus systematically uses the latter (together with *De Caelo* I) for his *EP*, 2. Grosseteste’s occupation with Proclus’ texts is important in many respects. First of all, it testifies to the fact that Grosseteste recognized the dependence of Proclus’ *EP* on Aristotle’s *Physics*. Also, it renders Proclus a highly probable source of inspiration for Grosseteste’s method of commenting on Aristotle. This method has been correlated with the medieval theological tradition, represented by Alan of Lille and Nicholas of Amiens, and ultimately with Boethius and Euclid.¹⁵ What Grosseteste’s *Commentaries* seem to share

¹¹ McEvoy, *Robert Grosseteste*, 82.

¹² Richard W. Southern, *Robert Grosseteste: The Growth of an English Mind in Medieval Europe* (Oxford: Clarendon Press, 1998), 174.

¹³ Southern, *Robert Grosseteste*, 134.

¹⁴ Neil Lewis, “Robert Grosseteste’s Notes on the *Physics*”, in *Editing Robert Grosseteste. Papers given at the Thirty-sixth Annual Conference on Editorial Problems, University of Toronto, 3-4 November 2000*, edited by E. A. Mackie and J. Goering (Toronto: University of Toronto Press, 2000), 118-119.

¹⁵ Gillian R. Evans, “The ‘Conclusiones’ of Robert Grosseteste’s Commentary on the *Posterior Analytics*”, *Studi Medievali* 24/2 (1983): 724-734; Charles H. Lohr, “The Pseudo-Aristotelian *Liber de*

exclusively with Proclus is their common dependence (however explicit or not) in terms of content on an authoritative text and the intention to expose its argumentative tenets by projecting upon it a technical idiom that is very close to the idiom of the axiomatic method. Grosseteste and Proclus ‘re-write’ and re-articulate an already existing text. In this respect, their undertakings make up a distinct group.

Thus, although Euclid definitely stands at the outset of this axiomatic tradition and inspires Proclus’ reworking of Aristotle’s *Physics* and his *Elements of Theology*, still, especially with regard to Aristotle’s interpretation, Proclus’ *EP* furnishes a model that is not to be found in Euclid.¹⁶ Moreover, one should not oversee that Grosseteste’s insights into the *EP* do not so much touch upon doctrinal issues, but rather focus almost exclusively on the criteria that guided Proclus’ restructuring of the *Physics*. This indicates that he has perfectly grasped that the innovative character of Proclus’ undertaking is to be found precisely in the *structural* re-organization of an already existing material according to the formal requirements of the method of the mathematicians. This is why his objections against Proclus’ practice primarily raise questions of faithfulness to the argumentative *order* and *method* of Aristotle’s text. There is no sign at all that Grosseteste is surprised by Proclus’ practice and method. He does not discuss it as such. He only focuses on the way Proclus applies it, without questioning its legitimacy as a method.

2. Grosseteste’s Introductory Remarks

It should be mentioned from the very beginning that Grosseteste’s comments on *Physics* VI pose certain textual problems. These relate to the credibility of the present edition and to the fact that Grosseteste’s notes originally had the form of glosses.¹⁷ More than that, “these glosses were assembled as a continuous text after Grosseteste’s death” and he [Grosseteste] “reads Aristotle trying to trace the stages of Aristotle’s arguments back to the propositions of Proclus’s *Elementatio*”.¹⁸ Similar concerns are raised by Neil

causis and Latin Theories of Science in the Twelfth and Thirteenth Centuries”, in *Pseudo-Aristotle in the Middle Ages. The Theology and Other Texts*, edited by J. Kraye, W.F. Ryan, and C.B. Schmitt (London: The Warburg Institute-University of London, 1986), 53-62.

¹⁶ Contrary to the *EP* and to Euclid in general, but in anticipation of the *Liber de causis*, Proclus’ *Elements of Theology* has no introductory section with unargued principles. As Lohr puts it, this method is deductive, but not axiomatic. See: Lohr, “The Pseudo-Aristotelian *Liber de causis* and Latin Theories of Science in the Twelfth and Thirteenth Centuries”, 56, 59.

¹⁷ Lewis, “Robert Grosseteste’s Notes on the *Physics*”, 104-105. For the critical edition, see: Roberti Grosseteste, *Commentarius in VIII Libros Physicorum Aristotelis*, edited by R. Dales, Studies and Texts in Medieval Thought (Colorado: University of Colorado Press, 1963). Grosseteste’s translations are mine.

¹⁸ I cite from the (so far unpublished) text of the lecture that Pietro Rossi recently delivered at KU Leuven in the context of the “2nd Notre Dame University-KU Leuven Collaborative Workshop in Ancient, Medieval and Renaissance Philosophy”, which took place in Leuven (1-2 June, 2022). The title of his lecture was “Robert Grosseteste’s Notes on the *Physics* and the Early 13th Century Reading of Proclus in England”. I would like to warmly thank Professor Rossi for kindly sharing with me the

Lewis: “Unfortunately, Grosseteste does no more than give an exposition of Aristotle’s arguments in book 6.1 of the *Physics* in his own notes on this book, and his exposition is largely a pastiche of passages from Proclus commentary on this material”.¹⁹ In light of the above and in anticipation of the new edition by Lewis and King, the remarks that are sketched below cannot be conclusive. To a certain extent their character remains preliminary and introductory. What, then, is one to expect from the study of this peculiar text as it stands now?

In a very brief introductory section that precedes his focused discussion of Proclus’ practice, Grosseteste sets the framework of certain objections against it.²⁰ His focus is not so much on what Proclus does (Grosseteste starts by merely stating that Proclus “arranges” Aristotle’s “conclusiones”), but on whether he does so in the proper way. Indeed, he finds Proclus’ way somewhat arbitrary. Grosseteste’s overarching criticism against Proclus is that he orders Aristotle’s conclusions unthoroughly (“non penitus”), since he only seemingly follows Aristotle’s order of argumentation (“videtur sequi ordinem Aristotelis”). His criticism gradually becomes more concrete. The exact problem with Proclus’ deviation from Aristotle is that what Aristotle concludes “primo syllogizando”, Proclus himself “turns it into a conclusion, as if it were the ultimately intended conclusion” (“ipse Proclus quasi ultimo intentam facit conclusionem”). The precise meaning of these phrases, and especially of the phrase “primo syllogizando”, is not yet fully clear but, as we shall see, Grosseteste’s remarks on specific Proclean theorems will shed some light on them.

At any rate, it is in view of these objections that Grosseteste himself undertakes to present the conclusions “per modum Aristotelis”, thus denouncing Proclus’ reconstruction as unfaithful to Aristotle’s text. As we shall see, instead of working on the basis of what Grosseteste considers to be Aristotle’s approach, namely, the threefold argumentative strategy consisting of definitions, suppositions and conclusions, Proclus only identifies definitions and conclusions. In this regard, he fails to do justice to Aristotle’s syllogistic procedure. Rather, he should have incorporated Aristotle’s suppositions as well, as Grosseteste himself does both while commenting on the defects of Proclus’ restructuring and in his *Commentary on the Posterior Analytics*. On top of that, the Aristotelian suppositions that Proclus does not take into consideration in his

text of his lecture (as well as other contributions) and for his insights concerning Grosseteste and his reception of Proclus. See also: Pietro B. Rossi, “Natura, necessità e caso secondo Roberto Grosseteste”, in *Per una storia dell’idea di natura. Dal tardo medioevo all’età moderna*, edited by C. Panti, G. Patella and P. Quintili (Roma: UniversItalia, 2018), 52.

¹⁹ Neil Lewis, “Robert Grosseteste on the Continuum”, in *Albertus Magnus and the Beginnings of the Medieval Reception of Aristotle in the Latin West. From Richardus Rufus to Franciscus de Mayronis*, edited by L. Honnefelder, R. Wood, M. Dreyer and M.-A. Aris (Münster: Aschendorff, 2005), 182.

²⁰ Here is the text: Roberti Grosseteste, *Commentarius in VIII Libros Physicorum Aristotelis*, 116, l. 1-5: “Proclus, qui huius sexti libri ordinat conclusiones non penitus, videtur sequi ordinem Aristotelis, sed quod Aristoteles primo syllogizando concludit, ipse Proclus quasi ultimo intentam facit conclusionem. Ideo per modum Aristotelis ordinate sunt”.

reconstruction of the arguments from the *Physics* are upgraded by Proclus into individual theorems in the *EP*. For Aristotle, so Grosseteste seems to suggest, these suppositions are only supposed to ground, but not constitute themselves, conclusions.²¹ This, I think, is what Grosseteste has in mind when saying that what Aristotle concludes “aiming first to make a syllogism” (“primo syllogizando”), Proclus himself “turns it into a conclusion, as if it were the ultimately intended conclusion” (“ipse Proclus quasi ultimo intentam facit conclusionem”). This aspect will be examined in more detail in the next section. As a result of this practice, Proclus unjustifiably increases the number of conclusions extracted from the Aristotelian text.

Grosseteste’s openly avowed ambition to stick, unlike Proclus, to the original order of exposition reveals an attempt to elevate himself not so much to the true *interpreter* of Aristotle’s work in doctrinal terms, but rather to the most diligent and respectful to authority mediator of Aristotle. In this context, the term “mediator” refers to the work of presenting a body of knowledge in ways that facilitate its understanding and unearth its structural components. This is how both Grosseteste and Proclus conceive of their respective endeavors. Proclus’ reworking of Aristotle cannot but attract Grosseteste’s interest as a forerunner of his very own approach towards Aristotle. In the *EP*, after all, Grosseteste was able to “verify how far Aristotle could be read and understood ‘systematically’”.²² From this perspective, one may suggest that Grosseteste retrospectively engages in a ‘competition’ with Proclus with regard to the proper method of reconstructing and re-presenting Aristotle’s argumentation.

Proclus reworked Aristotle’s *Physics* in a way that emphasized its logical rigor and the structural continuity of the arguments.²³ Certain aspects of his project, though, might seem too radical for Grosseteste. Proclus does not write a commentary, that is, a work that by its very title admits its derivative character and by its nature is dependent on the text that it wishes to comment on, but rather an *Elementatio*. Proclus does not acknowledge nor declare that in his *EP* he ‘re-writes’ certain chapters of Aristotle. He transcribes a self-standing text into another literary genre. Proclus takes the liberty of presenting Aristotle’s conclusions almost as if they were mathematical syllogisms and frames them with a markedly consistent and formal template.²⁴ In this regard, his

²¹ Celina Lertora, “Ciencia y método en Roberto Grosseteste”, *Humanitas Digital* 18 (1977): 153-182, esp. 176.

²² Rossi, “Robert Grosseteste’s Notes on the *Physics* and the Early 13th Century Reading of Proclus in England” in England”, 11.

²³ O’ Meara, *Pythagoras Revived*, 191.

²⁴ Jan Opsomer, “Proclus’ *Elements of Physics* and the Axiomatization of Kinematics”, in *Relectures néoplatoniciennes de la théologie d’Aristote*, edited by F. Baghdassarian, I. Papachristou, and S. Toulouse (Sankt Augustin: Academia, 2020), 84. The full potential of these remarks is revealed in Proclus’ *Elements of Theology*. For Proclus’ use of *mos geometricus* there, see: Jan Opsomer, “Organiser la philosophie selon ses éléments. Structures argumentatives dans les *Éléments de Théologie*”, in *Relire les Éléments de théologie de Proclus: Réceptions, interprétations antiques et modernes*, edited by G. Aubry, L. Brisson, P. Hoffmann, and L. Lavaud (Paris: Hermann, 2021), 133-176.

method goes beyond the commentary tradition and presupposes degrees of autonomy that Grosseteste seems to reject. Thus, Grosseteste's *Commentary* may be seen as promising a rather moderate and careful, undeniably less radical and innovative, reconstruction, yet one that considers its closeness to Aristotle's text as its most important virtue. If, after all, the *EP* dominates Grosseteste's reception of *Physics* VI, this is not "pour en faire une paraphrase", but rather with a view to exposing its methodological defects.²⁵

3. 29 Conclusions, 2 Corollaries and 2 Suppositions

Grosseteste attributes a "progressive order" to Aristotle's text by identifying in total twenty nine "conclusiones".²⁶ These are numbered ("prima conclusio", "secunda conclusio" etc.) and sometimes matched with their corresponding demonstration.²⁷ In what follows, I will refer to these conclusions of Grosseteste with the acronym "GR", the subscript numbers referring to the number of the conclusion. In most cases, Grosseteste provides a summary or explanation of the "conclusio" and cites the exact Aristotelian phrase that corresponds either to the "conclusio" itself or to its demonstration (with phrases like "cuius demonstratio in littera aperta est ibi", "conclusio ponitur ibi"). The summary standardly starts with the number of the conclusion followed by the phrase "ostendit quod" (e.g. "17^o ostendit quod"). Immediately afterwards, Grosseteste relates the Aristotelian conclusion with Proclus' theorems, almost always with the same expressions "et est 17^a Procli", "et est ista 18^a Procli". These three structural units (conclusion, summary, connection with Proclus) make up a typical paragraph in Grosseteste's *Commentary*. Grosseteste's wording makes it clear that, since it admits of demonstration and because Aristotle makes assumptions in order to prove it, a "conclusio" is posterior to and derivative from what is used for its establishment.

From the perspective of an axiomatic exposition, it is also remarkable that Grosseteste identifies the two corollaries of *EP*, 1. According to his reconstruction of the text, they appear in GR₆ and GR₂₃ and he himself qualifies them as such.²⁸ Corollaries are a distinct feature of axiomatic expositions and are introduced with a standardized

²⁵ Aurélien Robert, "Atomisme et théologie au Moyen Âge (II)", *Annuaire de l'École pratique des hautes études (EPHE), Section des sciences religieuses* 125 (2018): 306. URL: <http://journals.openedition.org/asr/2042>; DOI: <https://doi.org/10.4000/asr.2042>.

²⁶ Rossi, "Robert Grosseteste's Notes on the *Physics* and the Early 13th Century Reading of Proclus in England" in England", 7.

²⁷ Lertora, "Ciencia y método", 161. See p. 176-179 for a full list of them. See also: Olga Weijers, "Conclusio. Nouvelles réflexions sur un mot rebelle", in *Mots médiévaux offerts à Ruedi Imbach*, edited by I. Atucha, D. Calma, C. König-Pralong and I. Zavatiero, *Textes et Etudes du Moyen Âge* 57 (Porto: FIDEM, 2011), 175-183.

²⁸ Roberti Grosseteste, *Commentarius in VIII Libros Physicorum Aristotelis*, 117, 120. More in particular: "et interponit corollarium illud" (117, l.17); "ex his sequitur quoddam corollarium" (120, l. 9-10).

language, namely, with the phrase “from this it also appears that” (“Ἐκ δὲ τούτου φανερόν”).²⁹ Grosseteste’s phrase “ex his sequitur” confirms that he is in position to grasp the function of corollaries as findings, that is, conclusions, which were not originally planned, but ultimately result from a demonstration originally initiated for another purpose. In his *in Euclidem*, Proclus explains that a corollary should be regarded as a “lucky find” (301.24), namely, a conclusion that, albeit established by the end of a given demonstration, was not our initial goal (303.8-9). Rather, this “lucky find” was demonstrated simultaneously (301.23-24: “συγκατασκευάζεται ταῖς ἄλλων ἀποδείξεσιν”) with our initially intended theorem.

According to Grosseteste, GR₆ is twofold: a) “The passage over the infinite, then, cannot occupy a finite time, and [b] the passage over the finite cannot occupy an infinite time”.³⁰ Aristotle first demonstrates (b) and then adds that “the same demonstration will also show the falsity of the assumption that infinite length can be traversed in a finite time”.³¹ As Grosseteste rightly remarks, Proclus divides these two claims into two separate theorems (“et hoc dividit Proclus in duas propositiones”), namely, his theorems EP, 1.12 and EP, 1.13 respectively. In fact, Proclus changes the order: he first deals with (a) in his EP, 1.12 and then with (b) in his EP, 1.13. At any rate, he demonstrates both Aristotelian claims. Since (a) and (b) are two distinct “conclusiones”, Grosseteste does not raise any objections at all against Proclus’ practice. He only adds, quite justifiably, that Proclus interposes (“interponit”) between his EP, 1.12 and EP, 1.13 a corollary, which, one may point out, is absent from Aristotle’s text.

“Suppositions” constitute an additional technical term that Grosseteste uses in the form of a verb (“sumo, assumo”) in his GR₂ and GR₈. Aristotle’s claim in GR₂ is that a point cannot be after a point nor a now after a now, because a line is always between points as well as time between nows. According to Grosseteste, in order to prove his conclusion (“ad hanc probandam”), Aristotle assumes (“sumit”) that “indivisibilium existencium in eodem continuo et inter medium est continuum”.³² Proclus, Grosseteste says, does not recognize this Aristotelian assumption (let us call it A₁GR₂) as such. Rather, he illegitimately elevates the assumption to a separate conclusion (“et hanc facit Proclus unam conclusionem et est tertia Procli”).³³ Grosseteste’s own wording of A₁GR₂ seems to have been partially informed by the medieval translation of the EP.³⁴ Grosseteste rightly implies that Proclus’ EP, 1.3, according to which “what is between

²⁹ Opsomer, “Proclus’ *Elements of Physics* and the Axiomatization of Kinematics”, 92-93.

³⁰ Aristotle, *Physics*, VI.2, 233a31-32. Translation: R. P. Hardie and R. K. Gaye from: Aristotle, *The Complete Works*, edited by J. Barnes (Princeton, N.J., Princeton University Press, 1991).

³¹ Aristotle, *Physics*, VI.2, 233b14-15.

³² Grosseteste, *Commentarius in VIII Libros Physicorum Aristotelis*, 116, l. 11-13.

³³ Grosseteste, *Commentarius in VIII Libros Physicorum Aristotelis*, 116, l. 13-14.

³⁴ Grosseteste, *Commentarius in VIII Libros Physicorum Aristotelis*, 116, l. 11-13: “Ad hanc probandam sumit illam indivisibilium existencium in eodem continuo et inter medium est continuum”. See: Proclus, *Elementatio Physica*, edited by H. Boese, 30, l. 25-26: “Existencium in continuo individuorum intermedium continuum”.

partless things that are in a continuum is a continuum”, has no *direct* parallel in Aristotle. Rather, Proclus' *EP*, 1.3 presents in a more abstract form the following phrase from Aristotle's *Physics* VI.1 (231b9): “what is between points is always a line and what is between nows is always time”.

Turning to GR_8 , Aristotle concludes, according to Grosseteste, that “necessarily, too, the now – the now so-called not derivatively but in its own right and primarily – is indivisible”.³⁵ In order to demonstrate that the now is indivisible (“ad hanc autem probandam”), Aristotle assumes (“assumit”) and demonstrates according to Grosseteste “that the very same indivisible now is the end of the past and the beginning of the future” (“idem nunc indivisibile est *terminus preteriti et initium futuri*”).³⁶ This phrase of Grosseteste must correspond to the following lines of Aristotle, which immediately follow the conclusion to be demonstrated, namely, the indivisibility of the now: “For the now is an extremity [ἔσχατον] of the past (no part of the future being on this side of it), and again of the future (no part of the past being on that side of it): it is, we maintain, a limit [πέρας] of both. And if it is proved that it is of this character and one and the same, it will at once be evident also that it is indivisible”.³⁷ As far as I can see, one discrepancy between Grosseteste and Aristotle is that, while the former mentions “the end of the past” (*terminus preteriti*) and the “beginning of the future” (*initium futuri*), Aristotle only mentions “extremities” and “limits” of them.³⁸ At this point, it seems that Grosseteste's account of Aristotle's argument is closer to the Latin translation of the *EP*. Indeed, in his *EP*, 1.15 Proclus assumes the time span AB and considers A as the “*terminus totius preteriti*” and B as the “*initium totius futuri*”.³⁹ In fact, then, Grosseteste reconstructs Aristotle's assumption (let us call it A_1GR_8) following the Latin translation of Proclus. How does Proclus treat this Aristotelian assumption (A_1GR_8) according to Grosseteste? Grosseteste rightly suggests that Proclus transforms the Aristotelian assumption into an independent theorem, namely, his *EP*, 1.15, where Proclus indeed proves that “the now is the same in the past and in the future time”.⁴⁰ Thus, the indivisibility of the now is only proved by Proclus in his *EP*, 1.16.⁴¹ The latter starts, unsurprisingly and justifiably, with a cross-reference to the established conclusion of the *EP*, 1.15.⁴²

³⁵ Aristotle, *Physics*, VI.3, 233b33-34: “Ανάγκη δὲ καὶ τὸ νῦν τὸ μὴ καθ' ἕτερον ἀλλὰ καθ' αὐτὸ καὶ πρῶτον λεγόμενον ἀδιαίρετον εἶναι”.

³⁶ Roberti Grosseteste, *Commentarius in VIII Libros Physicorum Aristotelis*, 117, l. 28-29.

³⁷ Aristotle, *Physics*, VI.3, 233b35-234a5.

³⁸ See: *Translatio Vetus (fasciculus secundus), Physica*, edited by F. Bossier, J. Brams, Aristoteles Latinus VII 1.2 (Leiden and New York: Brill, 1990), 227, l. 5-10: “Est enim aliquod *ultimum* [ἔσχατόν τι] eius quod factum est, cuius in hec nichil futuri est ... quod utique diximus utrisque esse *terminum* [πέρας]...”.

³⁹ *EP*, 1.15, 16,3-5. See: Proclus, *Elementatio Physica*, edited by H. Boese, 38, l. 22-23.

⁴⁰ *EP*, 1.15, 14,27-28.

⁴¹ *EP*, 1.16, 16,9: “The “now” is indivisible”.

⁴² *EP*, 1.16, 16,10: “For if the “now” is the same in the past and the future, it is also partless”.

To this analysis of Grosseteste's reception of Aristotle's "assumptions" two remarks should be added. First, Grosseteste is praiseworthy for his extremely close reading and accurate reconstruction of the Proclean practice. It is perfectly true that Proclus 'isolates' the Aristotelian assumption that the "now" should be the same in the past and future time (A_1GR_8), if it is to be indivisible, and from this ("unde") makes an individual theorem, namely, the *EP*, 1.15. On the other hand, perhaps Grosseteste could have also praised Proclus for his constructive argumentative strategy. By extracting and demonstrating separately A_1GR_8 , Proclus provides his *EP*, 1.16 about the indivisibility of the "now" with a well-established grounding principle and renders much clearer and more linear the argumentative sequence. He first demonstrates the assumption and then appeals to it, as already proved, in order to demonstrate the indivisibility of the "now".

The second point is that Grosseteste's discussion of these two Aristotelian assumptions in GR_2 and GR_8 sheds some more light on his introductory remarks. As we have seen, it was not immediately clear what he meant when saying that what Aristotle "primo syllogizando concludit", Proclus himself "turns it into a conclusion, as if it were the ultimately intended conclusion" ("ipse Proclus quasi ultimo intentam facit conclusionem"). Now that we have studied his appropriation of Aristotle's assumptions, the phrase "primo syllogizando" seems to mean that Proclus transforms into independent theorems what "Aristotle concludes first with the aim to make/articulate a syllogism". This use of the verb "concludit" indicates that Grosseteste appeals to the notion of "conclusion" not only in the strong sense of "theorem", but also, in a less robust way, in order to refer to the assumptions that Aristotle establishes in order to prove a ("stricto sensu") "conclusio". Additionally, Grosseteste seems to follow a clear argumentative pattern when specifying Aristotle's assumptions. Throughout his account of *Physics* VI, he uses the verb "posits" ("ponit Proclus") for every Aristotelian conclusion that Proclus transcribes into a theorem. Instead, in these two cases of the assumptions illegitimately elevated to the status of theorems (A_1GR_2 and A_1GR_8), he uses the verb "makes" ("facit"), just as in his introductory remarks, in order to show the arbitrary and constructed character of Proclus' approach.

4. Aristotle, Proclus and Grosseteste on Contiguity, Continuity and Succession

The present section mainly focuses on GR_{1-3} , which appear in the first page of Grosseteste's *Commentary* (i.e., p. 116) and are very illuminating regarding his reception of Aristotle and Proclus. Aristotle's *Physics* VI starts with three crucial definitions on things that are in contiguity, in continuity and in succession. As the *Translatio Vetus* has it, "[s]i autem est continuum et quod tangitur et consequenter, sicut diffinitum est prius ...".⁴³ On this basis, Aristotle concludes that "nothing that is continuous can be composed of indivisibles: e.g. a line cannot be composed of points, the line being

⁴³ *Translatio Vetus, Physica*, 216, l. 3-4.

continuous and the point indivisible".⁴⁴ In Grosseteste's reconstruction, GR₁ states that it is impossible for partless things to make up a continuum ("ex indivisibilibus non componitur aliquod continuum").⁴⁵ In order to refer to Aristotle's demonstration of GR₁, Grosseteste reproduces the *Translatio Vetus*: "At vero neque consequenter inerit punctum puncto".⁴⁶ As we can see, there is an interesting deviation between GR₁ and its demonstration from the *Translatio Vetus*. Grosseteste frames GR₁ in abstract terms, without mentioning the Aristotelian examples (the line and the point).

Unlike Proclus, who leverages Aristotle's definitions in order to arrange them in a separate section preceding the theorems, Grosseteste mentions in passing only the definition of continuity. Still, this omission is ultimately less problematic than it seems at first sight. In *Physics* V, Aristotle explains the interconnection between these three classes of things (continuous, contiguous and in succession) setting forth, before *Physics* VI, their respective definitions.⁴⁷ Indeed, at the very beginning of *Physics* VI, Aristotle refers the reader back to the definitions established before ("πρότερον").⁴⁸ In his comments on *Physics* V, Grosseteste explicitly identifies the definitions as such, that is, as definitions posited by Aristotle ("positis diffinicionibus terminorum").⁴⁹ His omission, then, to mention them again at the beginning of *Physics* VI as definitions grounding Aristotle's conclusions does not considerably affect his reconstruction of Aristotle's arguments.

According to Grosseteste, GR₂ is that "indivisibles cannot be in succession in any continuum" and corresponds to Aristotle's phrase (231b6-7): "Nor, again, can a point be in succession to a point or a now to a now".⁵⁰ In order to establish it, so Grosseteste argues, Aristotle appeals to two assumptions. The first of them is A₁GR₂ and we have already studied it in the previous section. We have already seen that, in order to prove GR₂, Grosseteste assumes A₁GR₂, which corresponds to Proclus' EP, 1.3: "what is between partless things that are in a continuum is a continuum".⁵¹ This would correspond to Aristotle's phrase that "intermediate between points there is always a line and between

⁴⁴ Aristotle, *Physics*, VI.1, 231a24-26.

⁴⁵ Grosseteste, *Commentarius in VIII Libros Physicorum Aristotelis*, 116, l. 6-8.

⁴⁶ Grosseteste, *Commentarius in VIII Libros Physicorum Aristotelis*, 116, l. 10-11. See: *Translatio Vetus, Physica*, 217, l. 4-5: "At vero neque consequenter inerit punctum puncto...".

⁴⁷ Aristotle, *Physics*, V.3, 226b19-227b2. Simplicius, *In Aristotelis Physicorum libros quattuor priores/posteriores commentaria*, 2 vols, edited by H. Diels, *Commentaria in Aristotelem Graeca* [CAG] 9 and 10 (Berlin: G. Reimeri, 1882-1895). According to Simplicius (10.924.16-23), the presence of these definitions in the fifth book shows that this present book (the sixth) has been properly arranged after the fifth one.

⁴⁸ Aristotle, *Physics* VI, 230b22.

⁴⁹ Grosseteste, *Commentarius in VIII Libros Physicorum Aristotelis*, 110, l. 6.

⁵⁰ "At vero neque consequenter inerit puncto punctus". In fact, Grosseteste only cites until Aristotle's phrase "to a point" and does not include the succession between nows.

⁵¹ EP, 1.3, 4,7.

nows a period of time”.⁵² Even though Grosseteste criticizes Proclus’ practice, the way he transcribes A_1GR_2 in his *Commentary* is closer to that of Proclus, in the sense that both opt for an abstract language that omits the Aristotelian examples. Indeed, Grosseteste only mentions that Aristotle assumes the existence of indivisibles in the continuum and that what is between these indivisibles is continuum, without any mention of points, lines, nows and time.⁵³ The same is the case in his transcription of GR_2 , where he does not mention the concrete examples of Aristotle’s conclusion.

It seems that there is also a second assumption (A_2GR_2) summoned by Aristotle in order to establish GR_2 . This, however, can only indirectly be classified as an assumption, hence I did not include it in the previous section. While still discussing GR_2 , Grosseteste notices that “what Aristotle uses in order to prove that there are not indivisibles [quod indivisibilia non sunt] Proclus makes it [facit Proclus] his 5th conclusion”. Proclus’ *EP*, 1.5 reads: “Every continuum is divisible into ever divisibles” and corresponds to Aristotle’s passage 231b15-16: “it is plain that everything continuous is divisible into divisibles that are always divisible”. What does Grosseteste’s phrase “quod indivisibilia non sunt” refer to? Since he hasn’t mentioned his GR_3 so far, it is reasonable to suggest that he is still discussing GR_2 . It has been proposed already that the repetitive argumentative pattern “facit Proclus conclusionem” refers to these cases where Proclus transforms an Aristotelian assumption into an independent theorem. This was the case with A_1GR_2 and A_1GR_8 . Although here he does not use the verb “sumo” or “assumo”, it is evident that Aristotle merely uses Proclus’ *EP*, 1.5 for the sake of GR_2 , in order to show that “there are not indivisibles”. The latter must refer to the impossibility of having indivisibles in succession in a continuum, as GR_2 has it. His discussion of GR_2 , then, allows Grosseteste to expose Proclus as unthoroughly representing Aristotle’s argumentation, since already at this early stage of his *EP* he transforms two Aristotelian assumptions, one explicit (A_1GR_2) and one implicit (A_2GR_2), into individual theorems.

At this point of his account, Grosseteste has only mentioned Proclus’ *EP*, 1.3 and *EP*, 1.5, which correspond to Aristotle’s two assumptions for GR_2 . Immediately after saying that “what Aristotle uses in order to prove that there are not indivisibles Proclus makes it his 5th conclusion”, Grosseteste adds that “as a result [“consequenter”], Proclus does not use it in this proof, for it is sufficiently proved”.⁵⁴ In this passage Grosseteste seems to mean that Proclus does not use *EP*, 1.5 in order to demonstrate “this proof”, which, in light of Grosseteste’s wording so far, must stand for GR_2 . But what is the Proclean equivalent of GR_2 ? The latter seems to correspond to Proclus’ *EP*, 1.4: “Two indivisible things are not in succession”. Grosseteste remarks that, since A_2GR_2 is turned into

⁵² Aristotle, *Physics*, VI.1, 231b9-10. Simplicius qualifies it as “self-evident” (“πρόδηλον”). See: Simplicius, *In Aristotelis Physicorum libros quattuor priores/posteriores commentaria*, 10.928.16.

⁵³ Grosseteste, *Commentarius in VIII Libros Physicorum Aristotelis*, 116, l. 11-13: “Ad hanc probandam sumit illam indivisibilium existencium in eodem continuo and inter medium est continuum”.

⁵⁴ Grosseteste, *Commentarius in VIII Libros Physicorum Aristotelis*, 116, l. 18-20: “Consequenter Proclus non utitur illa in illa probacione, quia sufficienter probatur”.

Proclus' *EP*, 1.5, the latter is not and cannot be used by Proclus for the establishment of *EP*, 1.4. Still, Grosseteste rightly and generously admits that Proclus' *EP*, 1.4 is sufficiently proved, for Proclus indeed establishes it by appealing both to the previous theorem and to the definition of things in succession.⁵⁵

Grosseteste's treatment of A_2GR_2 slightly differs from A_1GR_2 . After suggesting that Proclus transforms A_2GR_2 into his *EP*, 1.5, which then cannot be used for the sake of Proclus' *EP*, 1.4, he adds that Aristotle has a separate proof for A_2GR_2 ("ponit probacionem separatam"). If A_2GR_2 corresponds to Aristotle's claim that "it is plain that everything continuous is divisible into divisibles that are always divisible", its proof must be the phrase coming immediately after it: "for if it were divisible into indivisibles, we should have an indivisible in contact with an indivisible, since the extremities of things that are continuous with one another are one and are in contact."⁵⁶ This separate proof comes immediately after A_2GR_2 . Now, since A_2GR_2 has been demonstrated, this suffices for Grosseteste to consider it as an independent conclusion and, more accurately, part of his GR_3 . Grosseteste argues that A_2GR_2 is sufficiently proved ("pro conclusione satis potest numerari"), hence it can be included in his GR_3 : "Moreover, it is plain that everything continuous is divisible into divisibles that are always divisible; [...] The same reasoning applies equally to magnitude, to time, and to motion: either all of these are composed of indivisibles".⁵⁷ GR_3 has no counterpart in Proclus' *EP* and, as we can see, its first part includes the whole A_2GR_2 but obviously omits its demonstration. Here, then, Grosseteste presents Aristotle as demonstrating one of his assumptions (A_2GR_2) and this might explain why, in this specific context, Grosseteste's own attitude towards Proclus is less critical than in other contexts already studied. In other words, Grosseteste seems to tacitly admit that Proclus' transformation of A_2GR_2 into an individual theorem is more legitimate here.

So far, Grosseteste has explicitly correlated A_1GR_2 with *EP*, 1.3 and A_2GR_2 with *EP*, 1.5 and only implicitly GR_2 with *EP*, 1.4. A perfect match between Aristotle, Proclus and Grosseteste appears in the theorem, according to which indivisible things cannot make a continuum. This is the first Aristotelian claim, which corresponds to GR_1 and *EP*, 1.2. Although Grosseteste does not explicitly mention the relation between his GR_1 and *EP*, 1.2, still he indirectly refers to *EP*, 1.2, when pointing out that Proclus uses the claim that indivisible things cannot touch each other (this is *EP*, 1.1) in order to show (in *EP*, 1.2) that, therefore, they cannot make up a continuum ("et hec dua indivisibilia se non tangunt qua utitur Aristoteles et Proclus ad probandum quod continuum non est ex indivisibilibus").

But if Aristotle's first claim and GR_2 correspond to *EP*, 2, what is the content and *raison d'être* of *EP*, 1.1? The latter reads: "Two partless things will not touch each other". Although Aristotle gives us, at the beginning of *Physics* VI, a definition of the things in

⁵⁵ *EP*, 1.4, 4,13-17.

⁵⁶ Aristotle, *Physics*, VI.1, 231b16-17.

⁵⁷ Aristotle, *Physics*, VI.1, 231b15-16, 18-19.

contact, he does not design a conclusion explicitly stating that two partless things cannot touch each other. However, in *Physics V* he had explained that contiguity is logically prior to continuity. Aristotle explains that all things that are contiguous (“ἀπτόμενον”) are necessarily the one after the other (“ἐφεξῆς”), and all things that are continuous are necessarily in contiguity. On the other hand, things that are in succession (“ἐφεξῆς”) need not be in contiguity (“τὸ δ' ἐφεξῆς οὐ πᾶν ἄπτεσθαι”) and the things that are contiguous are not necessarily continuous (“εἰ δ' ἄπτεται, οὐπω συνεχές· οὐ γὰρ ἀνάγκη ἐν εἶναι αὐτῶν τὰ ἄκρα”).⁵⁸

In his introductory section with the definitions, Proclus arranges the latter following the exact order of Aristotle. However, his *EP*, 1.1 does not follow Aristotle's order of the conclusions. In fact, his *EP*, 1.1 (“Two partless things will not touch each other”) is absent from Aristotle but logically prior to Aristotle's claim about continuity. Proclus' *EP*, 1.1 is based on Aristotle's second definition, which Aristotle never turns into an individual conclusion. From that perspective, Proclus 'invents' an argument that Aristotle, as it were, omits, thus staying closer to Aristotle's logical order of definitions than Aristotle himself. As we have seen, these definitions depict certain relations between classes of things and these relations have a certain logical order. Aristotle does not fully deploy this order in his conclusions, whereas Proclus aspires to do so. This difference can be better grasped, should we distinguish the actual order of Aristotle's definitions and conclusions from the logical order implied by his definitions. As they stand, the definitions at the beginning of *Physics VI* do not reflect the logical relations explained in *Physics V*. If they were to do so, their order should be the following: (1) contiguous things, (2) continuous things, (3) things in succession.

Judging from Proclus' way of restructuring Aristotle, it seems that Proclus himself silently favored this distinction and prioritized the *logical* order of the definitions. Although, therefore, his section on definitions complies with Aristotle's order, his theorems subscribe to another, logical order. Grosseteste, on the other hand, 'rightly' criticizes Proclus for deviating from the Aristotelian order, because the order he wishes to comply with is the order of Aristotle's *exposition*. Having demonstrated in *EP*, 1.1 that two partless things cannot touch each other, Proclus can now, in his *EP*, 1.2 momentarily align himself with Aristotle, since his *EP*, 1.2, as we saw, is the same with the first claim of Aristotle and with *GR*₁. Committed as he is to the logical order of the argumentation, Proclus needed one more step before reaching and articulating Aristotle's claim that indivisible things cannot make a continuum.

Aristotle's conception of the “continuum” presents certain interesting variations, whose appropriation by Proclus and Grosseteste is worth unearthing. In *Physics V*, Aristotle announces that he will define the noun “continuum” (“συνεχές”), which is in singular.⁵⁹ Aristotle introduces continuity either as a noun in singular (“συνεχές”),

⁵⁸ Aristotle, *Physics*, V.3, 227a18-25.

⁵⁹ Aristotle, *Physics*, V.3, 226b20, 227b1.

which results from the composition of two things, or as a relational term in the form of an adjective in plural (“συνεχῆ”). This is evident at the beginning of *Physics* VI, where he refers the reader back to the definition of the “continuum” before (“πρότερον”), in the fifth book, only to proceed to a definition of *continuous* things (“συνεχῆ”).⁶⁰ The transition is rather smooth, for the implicit assumption is that, in order to ultimately have a continuum, at least two continuous things are needed.⁶¹ If the boundaries of two things are not just in contact but also one, then they actually merge into one continuous thing. The continuity between two things gives rise to the one single continuum. The fact that the continuum consists of at least two continuous things is underlined in Aristotle’s conclusion, according to which no continuum can be *made of* partless things, and is repeated by Proclus and Grosseteste. The former refers to the “continuum” both as a noun and as an adjective, but the latter only reproduces it as a noun. A continuum, then, is made; it is, as it were, ‘artificially’ or derivatively one and the status of continuity is always dependent on the temporal (“ὡς ποτε”) continuation of the boundaries’ identification. This dependence was already implied by Aristotle, who explains that “continuity belongs to things that naturally in virtue of their mutual contact form a unity” (“τοῖς ποίοις ὑπάρχειν, ἐν τούτοις ἐστι τὸ συνεχές, ἐξ ὧν ἔν τι πέφυκε γίγνεσθαι κατὰ τὴν σύναψιν”). As for their boundaries, they remain one not because of the things themselves, but for as long as “that which holds them together is one, so too will the whole be one” (“τὸ συνέχον ἔν”).⁶²

5. Division, Omission and Conflation of *conclusiones*

The previous section focused on GR₁, GR₂ and GR₃ and tried to investigate what they reveal about Grosseteste’s reception of Aristotle and Proclus. It is mainly after GR₄ that Grosseteste initiates another recurrent argumentative pattern, in the context of which he discusses whether Proclus divides, omits or conflates Aristotle’s arguments. GR₄ reads: “If a magnitude is composed of indivisibles, the motion and time are equally composed of indivisibles”.⁶³ According to Grosseteste, Proclus “divides these two propositions into two, which are his 6th and 5th theorem”. In fact, though, GR₄ corresponds to Proclus’ *EP*, 1.6 and *EP*, 1.7. GR₄ has no direct parallel in Aristotle, for the latter first argues that “if a magnitude is composed of indivisibles, the motion over that magnitude must be composed of indivisibles” (VI.1, 231b21-22), then he demonstrates this claim at length (VI.1, 231b22-232a17) and finally draws an analogy with time, adding that “if length and motion are thus indivisible, it is similarly necessary that time also be indivisible, that is to say be composed of indivisible nows”.⁶⁴ Aristotle, then, first examines the indivisibility of motion, which is accompanied by a lengthy

⁶⁰ Aristotle, *Physics*, VI.1, 231a19.

⁶¹ Lewis, “Robert Grosseteste on the Continuum”, 161.

⁶² Aristotle, *Physics*, V.3, 227a14-17.

⁶³ Grosseteste, *Commentarius in VIII Libros Physicorum Aristotelis*, 116, l. 26-117, l.1.

⁶⁴ Aristotle, *Physics*, VI.1, 232a17-18.

demonstration, and separately that of time. GR₄, then, merges, as it were, in one single formulation these two Aristotelian arguments. As for Proclus, he does not divide them, strictly speaking, since already for Aristotle they count as two independent claims. By “division” Grosseteste must rightly refer to the fact that Proclus divides their demonstrations. Contrary to Aristotle, who treats only in passing the divisibility of time, Proclus offers us an account of it (in his *EP*, 1.7) that is equally detailed as that concerning the divisibility of motion (in *EP*, 1.6).

After that, in his discussion of GR₅, which corresponds to Aristotle’s *Physics* 232a25-27 about the inequality of motion (“de inequalitate motus”), Grosseteste aptly praises Proclus for reasonably (“rationabiliter”)⁶⁵ dividing it into three propositions (his *EP*, 1.8, 1.9, 1.10).⁶⁶ Indeed, Proclus dismantles Aristotle’s dense claim into three individual successive arguments, which have two intriguing features that Grosseteste does not bring into his account of Proclus’ reconstruction. The first is that in *EP*, 1.8 Proclus makes a crucial intervention in the Aristotelian text, introducing a definition of the faster and slower that is absent from it.⁶⁷ Second, Grosseteste does not discuss at all another interesting Proclean practice, namely, the introduction of a second or even third demonstration for the same theorem. This practice is not arbitrary, for Proclus spells out these additional demonstrations on the basis of certain recurrent terms in Aristotle’s text. In the case of *EP*, 1.10, the text of Proclus’ second demonstration corresponds to an Aristotelian passage starting with “moreover” (“ἔτι”).⁶⁸ The same is the case in the second demonstration of *EP*, 1.2 (corresponding to GR₁) about the impossibility of having a continuum composed of partless things. There too the second demonstration corresponds to an Aristotelian passage introduced with “moreover” (ἔτι).⁶⁹

According to Grosseteste, Proclus not only divides theorems, but in some cases he also conflates them. In his discussion of GR₁₅ and GR₁₆ Grosseteste rightly suggests, albeit with some reservations (“ut mihi videtur”), that Proclus merges these two conclusions into one single theorem.⁷⁰ However, the correspondence between the Aristotelian claims and the Proclean theorems appears somewhat problematic at this point. GR₁₄ corresponds to Aristotle’s claim that “the time primarily in which that which has changed has changed must be indivisible”.⁷¹ GR₁₄ corresponds to *EP*, 1.22 and

⁶⁵ Here I opt for “rationabiliter” instead of “racionaliter”. I thank one of the referees for underlining that the former reading appears in MS Merton 295.

⁶⁶ Aristotle, *Physics* 232a25-27: “It necessarily follows that the quicker of two things traverses a greater magnitude in an equal time, an equal magnitude in less time, and a greater magnitude in less time, in conformity with the definition sometimes given of the quicker.”

⁶⁷ *EP*, 1.8, 85-7.

⁶⁸ Aristotle, *Physics*, VI.1, 232b14.

⁶⁹ Aristotle, *Physics*, VI.1, 231a29.

⁷⁰ Grosseteste, *Commentarius in VIII Libros Physicorum Aristotelis*, p. 119, l. 10-11: “In loco illarum duarum propositionum, ut mihi videtur, non ponit Proclus nisi unam ...”

⁷¹ Aristotle, *Physics*, VI.5, 235b32-33.

not to *EP*, 1.23. The reason why Proclus merges GR_{15} and GR_{16} into his *EP*, 1.23 is that there is a recognizable overlap between these two (GR_{15} and GR_{16}). GR_{15} reads: “But that which has reference to the beginning is not existent at all; for there is no such thing as a beginning of change, nor any primary time at which it was changing”.⁷² Additionally, GR_{16} is as follows: “It is evident, then, that there is no primary time in which it has changed; for the divisions are infinite.”⁷³ Since the portion of these two claims about the inexistence of any primary time of change is common, Proclus merges them in his *EP*, 1.23, where he shows that “no change has any beginning of change”.

Finally, Grosseteste argues that Proclus does not posit (“non ponit”) some Aristotelian arguments, namely, GR_{20} , GR_{21} , GR_{24} , GR_{25} and GR_{26} . Concerning the first two of them (GR_{20} and GR_{21}), Grosseteste accurately matches those preceding and following them with the corresponding Proclean theorems. More in particular, GR_{19} perfectly matches with Proclus’ *EP*, 1.27 and GR_{22} is equally compatible with *EP*, 1.28 and not *EP*, 1.26, as we read in the edition. Grosseteste then, identifies, GR_{20} and GR_{21} as being in between *EP*, 1. 27 and *EP*, 1. 28, but does not explain why Proclus omits them. In another occasion, namely, the omission of GR_{24} and GR_{25} , Grosseteste justifies Proclus’ omission. GR_{24} reads: “coming to a stand must occupy a period of time”.⁷⁴ This is missing, he says, because this theorem has been demonstrated both in *Physics* V but also earlier, namely, in *EP*, 1.18 (“everything that rests rests in time”). The same justification is offered for Proclus’ omission of GR_{25} , since it has already been adequately demonstrated in his *EP*, 1.25, but also for his omission of GR_{26} . In the corresponding Aristotelian passage (“And just as there is no primary time in which that which is in motion is in motion, so too there is no primary time in which that which is coming to a stand is coming to a stand”), Aristotle draws an analogy between the primary time of motion and the primary time of stand.⁷⁵ In his own rewriting of the conclusion, Grosseteste justifiably omits the first part about motion, because it has already been discussed earlier and Aristotle repeats it with “ὡσπερ” (just as), only to establish the analogy between motion and stand. Further, Grosseteste once again justifies Proclus, arguing that he similarly does not posit GR_{26} (“et hanc similiter non ponit Proclus”) because it has already been adequately demonstrated in his *EP*, 1.27, according to which “everything that has moved has been moving before”.⁷⁶

⁷² Aristotle, *Physics*, VI.5, 236a13-15.

⁷³ Aristotle, *Physics*, VI.5, 236a26-27.

⁷⁴ Aristotle, *Physics*, VI.8, 238b26-27.

⁷⁵ Aristotle, *Physics*, VI.8, 238b36-239a1.

⁷⁶ Grosseteste, *Commentarius in VIII Libros Physicorum Aristotelis*, 122, l. 7. See: *EP*, 1.27, 24.8. Translation: Nikulin.

Conclusions

At the beginning of this study I underlined the textual uncertainty surrounding Grosseteste's *Commentary on the Physics*, which was confirmed, for instance, by certain misattributions of Aristotle's conclusions to Proclus' theorems. For all that, even in its present state Grosseteste's reception of *Physics VI* is worthy of our attention. It displays that Grosseteste not only knew and closely studied Proclus' *EP*, but also that he had perfectly grasped its exact nature as an exposition of Aristotle's thought in a rigorous format informed by the geometrical tradition. Notwithstanding the differentiations between Proclus and Grosseteste in terms of style, method and literary genre, Grosseteste's own appropriation of the Aristotelian text by means of a technical idiom shapes a project that shares with the Proclean strategy the reading assumption that Aristotle's *Physics* does admit of such a treatment. One might even claim that the inclusion and discussion of the *EP* in Grosseteste's *Commentary* could count, as it were, as a retrospective and implicit approbation of Proclus' decision to 're-write' *Physics VI* in his *EP*, but not necessarily as an approbation of the exact way he did so throughout the *EP*. Grosseteste recognizes a certain similarity between his approach and that of Proclus and considers himself entitled, if not 'obliged', to discuss the *EP* in terms of method and order. He does so both on the macro-level, bringing out certain points of criticism, as for example, the proper order of exposition and the illegitimate transformation of assumptions into theorems, but also on the micro-level, examining in detail the establishment and subsequent use of individual propositions. Although he occasionally expresses objections, quite often he praises Proclus and justifies his practice. For him, Proclus somewhat anticipates his very own practice: he has already proposed and applied to Aristotle's *Physics* a somewhat different model of exposing the structure and logical tenets of an authoritative text.

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Fecha de recepción: 03/11/2022
Fecha de aceptación: 30/05/2023

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