Philoponus on τόπος. Redefining Place in Late Antiquity

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von Ioannis Papachristou

Der Präsident der Humboldt-Universität zu Berlin
Prof. Dr. Jan-Hendrik Olbertz
Der Dekan der Philosophischen Fakultät I
Prof. Michael Seadle, PhD

Gutachter

Erstgutachter: Prof. Dr. Christoph Helmig
Zweitgutachter: Prof. Dr. Christian Wildberg
The dissertation attempts to interpret afresh, on the one hand, the form, methodology and structure of Philoponus’ commentary on the *Physics* and, on the other hand, to study in depth his theory of place (*topos*). The book extends over five chapters and includes a preface, an epilogue and a bibliography. Philoponus attempts a double determination of place. He distinguishes between the place which is void, three-dimensional extension that is ontological different from bodies, and the concept of place that is filled by bodies. Philoponus wishes to redefine the relationship between place and body and he underlines the ontological difference that a bodiless extension should have from a bodily extension. The thesis also focuses on Philoponus’ critique of Aristotle’s definition of place and the Peripatetic tradition (Eudemus, Themistius) regarding the place of the heavens. The book concludes that, Philoponus’ strategy in the digressions of the commentary, but also in certain parts of his exegeses, can be seen in three stages: first, he repudiates the cogency of Aristotle’s and Themistius’ critique to the concept of local extension; second, he attacks the Aristotelian definition of place by showing its weaknesses and inconsistencies with the nature of things; and third, he establishes his own theory of place. The result is a valuable set of arguments regarding place and a major contribution to the physics of late antiquity.

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Preface

This is a philosophical study on the concept of τόπος (place) in Late Antiquity (6th century C.E.). The book centres on the theory of place held by a Christian theologian and commentator on Aristotle known as Ἰωάννης γραμματικός, φιλόπονος, Ἀλεξανδρεύς. His birth name, Ἰωάννης, indicates that the commentator was a Christian. He was given the last epithet because he is thought to have been born in Egyptian Alexandria in ca. 485 and certainly lived there up to 570. The epithet ‘grammatikos’ shows his early education as a grammarian or philologist and his intense interest in the field, as attested in his surviving grammatical works. Finally, the epithet ‘philoponos’ testifies to his character as a working scholar, for it signifies that Ἰωάννης was a lover of (spiritual) labour or toil.

Ἰωάννης Philoponus was a member of the Platonic school of Alexandria when Ammonius (ca. 435/445–517/526), the son of Hermeias (ca. 410–450), held its chair. We have one clue concerning Philoponus’ arrival at the philosophical school. Simplicius, who first attended the school at Alexandria under Ammonius and then left to join the Platonic school at Athens, reports that he never met Philoponus in the school of Alexandria; therefore we can assume that Philoponus joined the school shortly after Simplicius left Alexandria in ca. 510. Whether or not Philoponus succeeded Ammonius as head of the school is uncertain, but Philoponus’ philosophical association with the Platonic school lasted until his death. His surviving philosophical works show that he edited the lectures of his master Ammonius (commentaries). Despite these duties, Philoponus later continued working on Aristotle’s and

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1 All dates, unless otherwise stated, are C.E.
2 Supporting monophysitism as indicated by his late theological work (after 551), Arbiter. See Lang 2001, pp. 40; 41-60.
3 Golitsis (2008, p. 7) places Philoponus’ birth around 485; Wildberg (2008a) believes that Philoponus was born around 490. See also Verrycken 2010, p. 733.
4 For instance, the De vocabulis quae diversum significatum exhibent secundum differentiam accentus. In addition, Simplicius attests that Philoponus signed himself as ‘grammarian’ (in De caelo, 119, 7).
5 For more on Ammonius, see Blank’s articles. Blank 2010, pp. 654-666; Blank 2012.
Plato’s works, producing his own commentaries, which were partially prepared as lectures addressed to pupils of the school.8

Philoponus wrote his commentary on Aristotle’s Physics in 517.9 The chronology stems from the commentary itself, since the commentator says in his first lecture on Physics IV, 10: ‘For we say now the present year and month and day, year 233 of Diocletian’s reign, month pachôn, the tenth day’—that is 10 May 517.10 The commentary consists of four sharply distinguished parts which comprise an organic whole: the proem, the running commentary (i.e. the lectures11), and two digressions (παρεκβάσεις), which concentrate respectively on the concepts of place and void. Although Philoponus’ text is a commentary sensu stricto—i.e. an exegesis of the Aristotelian work—he also bequeathed to us a corpus of arguments against Aristotle. The structure of the commentary makes it exceptional among the commentaries of Late Antiquity.12 The lectures on the fourth book of the Physics are interrupted by two long digressions; additionally, comments are often completed by short excursus, for which we use the technical term ‘corollary’. Two digressions devoted to the concepts of place and void respectively and a corollary on the motion of projectiles (impetus) notoriously disagree with Aristotle in various respects.13 However, it is not the refutations alone that catch the attention of the reader; more importantly, Philoponus substitutes Aristotle’s theories and provides alternative accounts of place and void. My research focuses

8 From the surviving commentaries of Philoponus, the following are supposed to be editions from Ammonius’ courses: on Aristotle’s Prior Analytics, on the Posterior Analytics, on the On Generation and Corruption and on the On the Soul. The manuscript tradition indicates on the titles of the last three commentaries that they also contain personal observations by Philoponus («μετὰ τινων ἰδίων ἐπιστάσεων»). The remaining preserved commentaries belong to Philoponus’ own commentaries—namely, on the Categories, on the Physics, and on the Meteorology. Philoponus also refers to one of his commentaries, now lost, on Plato’s Phaedo (in Post. Anal., 215, 3-5).

9 Verrycken’s claim (2010, pp. 733-734; 736-738) that Philoponus revised his commentary on the Physics after 529 might have had some plausibility if the whole argument did not rely on his view that we can distinguish between two different periods of Philoponus’ intellectual course (‘Philoponus 1’ and ‘Philoponus 2’; see also Verrycken 1990, pp. 236-254). Goltis (2008, pp. 27-37) convincingly rejects Verrycken’s assumption and recently Algra—Ophuijsen (2012, pp. 5-11) has reinforced Goltis’ rejection. I also disagree with Verrycken’s assumption, following the aforementioned scholars. A remarkable view on Philoponus’ thought development both in its philosophical and theological context is proposed by Wildberg (1999, pp. 115-120), who explains Philoponus’ scientific method based on his monophysitic convictions.

10 «φαμὲν γὰρ ἐνεστηκέναι νῦν καὶ ἐνιαυτὸν καὶ ἡμέραν, ἐνιαυτὸν Διοκλητιανοῦ ἔτος σλγ, μῆνα παχών, ἡμέραν δεκάτην», in Phys., 701, 16-17.

11 We know from Philoponus that the commentary on the Physics was a text directly related to the school: «περὶ δὲ τούτου ἐν τοῖς εἰς τὸ τέταρτον τῆς Φυσικῆς ἀκροάσεως σχολικοῖς ἠμῶν συγγράμμασιν αὐτῷ κατέγραφον», in Meteor., 35, 18-19.

12 Simplicius’ commentary on Aristotle’s Physics does not have the same form as Philoponus’ commentary, but it contains as well two large texts known as ‘Corollarium de loco’ (in Phys., 601, 1-645, 19) and ‘Corollarium de tempore’ (in Phys., 773, 8-800, 25).

13 Philoponus is opposed to Aristotle’s definition of place (among other Aristotelian views), to his statements on the void and the motion of bodies through it, as well as to his explanations of forced motions such as the motion of projectiles.
on Philoponus’ definition of place and aspires to demonstrate that Philoponus provides a coherent theory which includes a complete study of place, void, and motion through voided place.

The study of Philoponus’ philosophical work has flourished since the 20th century mainly because of the publication of his commentaries on Aristotle in the series Commentaria in Aristotelem Graeca (hereafter, CAG) in the late 19th century.14 Since the 1950s especially, Philoponus’ commentaries have gradually begun to gain the attention of scholars. In the last 65 years many publications have provided new insights into the study of Philoponus, opening discussions on both his philosophical and theological texts, which, in parallel, shed light on his career.15

For Philoponus’ commentary on the Physics, the secondary literature derives from different disciplines. On the one hand, historians of science are interested in Philoponus’ commentary on the Physics because it contains his contributions to puzzling physical issues—for example, the motion of projectiles (impetus theory), the existence of the void and motion through void)—which have been tackled by physicists from the medieval era to the present day.16 On the other hand, philosophers and historians of philosophy have found in Philoponus’ commentary a criticism of the Aristotelian tradition’s definition of place. However, although the concept of τόπος figures prominently in philosophical discussions of cosmology and physics from Classical Antiquity (Plato, Aristotle) up to Late Antiquity

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14 For this bibliographical survey (which is not meant to be exhaustive) I rely mainly on the following four bibliographical sources: Sorabji (ed.) 1990, pp. 497-499; Sellars 2004, pp. 239-268; Golitsis 2008, pp. 281-291; Gerson (ed.) 2010, pp. 1143-1147.


(Philoponus, Damascius, Simplicius), the study of Philoponus’ theory of place has only recently attracted the attention of scholars.17

Philoponus’ theory of place has occasionally been discussed in the secondary literature. Yet only a few essays are entirely devoted to it. In other words, there are still many aspects of this theory that need to be studied. For example, Golitsis’ (2008) work (which is the most recent book on Philoponus’ commentary on the Physics) attempts a parallel reading of Simplicius and Philoponus’ commentaries. Golitsis successfully fills many gaps in our knowledge of the history of Philoponus’ commentary: he examines several issues such as Philoponus’ philosophical career and the form of the commentary and, he presents the argumentation of the digressions offering French translations of important texts of the commentary.18 Nonetheless, Golitsis’ philosophical focus is mainly on Simplicius. Philoponus’ theory of place, his reflections on the void, and his theory of the motion of the projectiles (impetus) are presented, but not examined in detail.19

When I started working on Philoponus’ theory of place, many questions arose: general questions about the form of the commentary or particular issues related to Philoponus’ account of place. But the secondary literature did not cover all these questions, nor did it have solutions to some crucial problems appearing in Philoponus’ commentary. As a result, the present study encountered many profound difficulties. The absence of a substantial bibliography on Philoponus’ theory of place and the lack of a translation of the running commentary on the Physics IV, 1-9 produced further obstacles. At that time, only the digressions on place and on the void had been translated into English (Furley 1991).

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18 See Golitsis 2008, pp. 22-37; pp. 55-64. However, Sedley’s article (1987) ‘Philoponus’ Conception of Space’ examines several arguments of Philoponus’ theory of place, especially those related to the definition of place as void.

19 To be more precise, Golitsis (2008, pp. 174-195) presents Philoponus’ digressions on place and on void and the corollary on the motion on the projectiles in twenty-one pages.
The present study aims to be an exegetical commentary, with a compounding character, on Philoponus’ critique of the theory of place and discussion on the void that Aristotle expounded in Physics IV, 1-9. I say exegetical in the sense that I attempt to present a comprehensive, broad-spectrum explanation of Philoponus’ complex theory of place and the void and to exhibit his contributions to the discussion of the concept of τόπος in Late Antiquity. The compounding character of my work lies in the systematic collection and connection of all the passages which relate to the concept of place throughout the proem, the exegesis, and the digressions of the commentary. One of the principal concerns of this study is to read Philoponus’ theory of place in accordance with the running commentary and, whenever necessary, in accordance with the proem. There are two reasons for this: first, we may be able to obtain a better understanding of the commentary’s form and structure, and, second, we can shape a more concise idea of Philoponus’ theory of place by following his reflections on the concept of τόπος from the introduction of the commentary (proem) and the exegesis up to the theory of place itself (digressions of the commentary). Therefore this study resets the question of the form of the commentary (called θεωρία-λέξις form). The relationship between the running commentary and the digressions posits the question: how do the digressions relate to the commentary? A further question derives from the previous one: how does one explain the relationship between the running commentary, the corollaries, and the digressions? These are the main questions concerning the form of Philoponus’ commentary that lead us to draw a significant distinction between corollaries and digressions (παρεκβάσεις). This distinction appears to be crucial for our understanding not only of the form of the commentary but also of the role of the digressions. For this reason, I present the common characteristics among simple exegesis, corollaries, and digressions and the differences between them. In addition, I collect a number of texts which show that we can pinpoint certain levels of interpretation appearing in the commentary on the Physics.


21 Algra—Ophuijsen note the need to study the running commentary (2012, pp. 1-2; 7-10).

22 Golitsis (2008, pp. 55-64; pp. 83-88) discusses the form of Philoponus’ commentary and attempts to shape a coherent view about the role of the digressions in the commentary.
Scholars often consider Philoponus’ repudiation of the Aristotelian theory of place to be unsatisfactory. In contrast to this assumption, I claim that Philoponus prepares a very cautious attack against Aristotle’s theory of place. Philoponus explicitly intends to dispute the cogency of the arguments that are supposed to support the Aristotelian view. It also turns out that his criticisms overcome the difficulties posed by Aristotle. In parallel, against the primary tendency of scholars to comprehend Philoponus’ digressions as criticizing Aristotle solely, a close reading proves that Aristotle is not the only target. This study attempts to demonstrate, wherever needed, that Philoponus disproves Aristotle, Themistius (whose paraphrase of the Physics was widely used by Philoponus), and the Peripatetic tradition endorsing Aristotle’s views (Eudemus, Alexander of Aphrodisias); further, Philoponus’ view differs, consciously or not, from other extension-theories of place held by early Atomists, Epicureans, and the Stoics.

The primary philosophical concern of this book, however, is the in depth investigation of the aspects of place established by Philoponus. Apart from a commentary on his account of place, we aim to clarify the meaning of τόπος. We will look at two main questions. First, what do we mean by ‘ontology of place’ in Philoponus? Philoponus argues for the necessary ontological difference (ἑτερότης) of place from bodies. We will go through Philoponus’ method of demonstration from common observations, such as measurement, vessels, and clepsydras (proofs of the so called ‘force’ of the void), as well as his use of thought experiments. We shall see how the entire point of these demonstrations is to show that place subsists as such and that it ontologically differs from bodies. Second, what does the ‘voided place’ mean within Philoponus theory of place? In other words, in what sense does Philoponus define place as void and what does it mean to be in place and to be in the void? We shall examine a series of arguments proving that motion of bodies through void is possible, against the Aristotelian assumption of the impossibility of motion through the void. From this perspective, the present study stresses the striking ontological priority that place has over locomotion, according to Philoponus.

23 Lang (2001) argues that Philoponus actually misunderstood Aristotle’s theory of place. When I lectured on Philoponus’ theory of place in Berlin (April-July 2011), some scholars also had doubts as to Philoponus’ successful rejection of Aristotle’s theory.
24 Philoponus’ criticisms are usually interpreted as a matter of Philoponus’ free spirit (Osborne 2006, pp. 8-9; Golitsis 2008, pp. 184-187). It is true that Philoponus seems to be unbound by authorities. Yet, how far do Philoponus’ criticisms stand from the proper work of a commentator? I will argue that the vast criticisms addressed to Aristotle by Philoponus can be explained within the framework of the exegesis adducing that regardless of how damaging these criticisms may be, there are elements demonstrating that this attitude could be part of the commentary tradition.
26 A guide to Themistius’ life (ca. 317-388) and work can be found in Kupreeva’s article (2010, pp. 397-416).
The book consists of five chapters. The first chapter (Form, Method and Structure of the Physics Commentary) introduces the reader to the form of the commentary and discusses several issues such as the edition (CAG) of the commentary, Philoponus’ exegetical methods, and his insistence on the true apprehension of the cosmos. The chapter then presents the overall structure of the digressions on place and void. The second chapter (Philoponus Defending Place as Extension) opens the philosophical discussion on Philoponus’ theory of place, in which he defines place as the three-dimensional, bodiless, unaffected, and immobile extension which is filled by bodies. The starting point of this chapter is Aristotle’s criticism of the extension-theory of his era and Themistius’ reception and additional criticisms that triggered Philoponus’ theory of place. In this chapter we follow Philoponus’ defense of his extension-theory which does not imply infinity or change of places, as Aristotle suggests.

The third chapter (The Ontology of Place) offers a systematic commentary on the core of Philoponus’ theory; this theory suggests the ontological difference between place and bodies by establishing a double approach that distinguishes between the conceptual aspect and the sensible aspect of place. Within the framework of this distinction we examine Philoponus’ arguments on the three-dimensionality of place, his use of thought experiments, his conception of the so-called ‘force’ of the void and the different ontological status between place and substance. The fourth chapter (The Voided Place) is devoted to Philoponus’ definition of place as void and to his arguments for the body’s motion through the void. The final chapter (Philoponus against the Aristotelian Definition of Place) presents Philoponus’ repudiation of Aristotle’s own doctrine of place. This chapter closely follows Philoponus’ arguments against the main points of the definition of place found in the Physics and, moreover, discusses Philoponus’ critique of the Peripatetic tradition concerning the place of the heavens.
CHAPTER 1 Form, Method and Structure of the *Physics* Commentary

1.1 The form of the *Physics* commentary

Only one commentary on Aristotle’s *Physics* is preserved from the late Platonic school of Alexandria (5th-6th centuries)—that is, Philoponus’ commentary.\(^\text{27}\) Unfortunately, the comments on the first four books of the *Physics* are the only ones which have been entirely transmitted since the comments on the last four books are fragmentary.

The commentary, as we have it, is constructed according to a specific form called «θεωρία-λέξις». Two different kinds of exegetical comments run through the commentary. First, there are extended comments, which are called «θεωρίαι».\(^\text{28}\) A θεωρία is a presentation of the arguments found in a particular passage of the Aristotelian text; usually, these arguments are also analyzed and explained. The θεωρία also contain signs of the methodological approach followed by the commentator. The methodological issues are connected to the way in which Philoponus structures Aristotle’s text and to the way he conceives of, and explains, the Aristotelian arguments. This kind of comment can be easily recognized by the reader, for it is a more systematic and, thus, extended text. It can be thought of as an overview of the structure and the content of Aristotle’s *Physics*.\(^\text{29}\) Second, there are shorter comments on «λέξεις». The term «λέξις» is used in two ways in the commentary tradition. It can simply mean the ‘words’ of someone, as for instance the words of Aristotle, or it can be used as a *terminus technicus* signifying a brief comment with which a term or a sentence of the Aristotelian text is clarified.\(^\text{30}\) This second use of the term forms a particular kind of comment. These comments usually lack descriptions and generally do not contain analyses of arguments. Thus, a λέξις section consists of explanatory notes containing textual, grammatical, and syntactical clarifications of a single word or a short sentence.

The structure of a commentary based on the «θεωρία-λέξις» form appears as follows. First we observe a lemma (i.e., a passage of one or more sentences\(^\text{31}\)) taken from Aristotle’s

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\(^{27}\) Simplicius’ commentary on the *Physics* is not a product of the school of Alexandria the commentaries of which are my main interest here.

\(^{28}\) This is also Philoponus’ terminology. See *in Phys.*, 552, 10-13; 591, 23-24. Note that he alternatively uses the expression διάνοια-λέξις (*in Phys.*, 125, 27-28).

\(^{29}\) See Philoponus, *in Phys.*, 630, 6-634, 2.

\(^{30}\) Philoponus, *in Phys.*, 548, 30-549, 1; 591, 23-25.

\(^{31}\) The expression «τὸ πρῶτον τῶν λημμάτων» (*in Phys.*, 102, 13) appears once in Philoponus’ commentary on the *Physics*. 

14
This lemma can refer to many lines of the Aristotelian text, though we have only been given a few lines of it. The following θεωρία often deals with a larger text than the given one in the lemma. First, Philoponus constructs the θεωρία of a passage. The θεωρία is followed by its λέξις, always placed after the θεωρία, in which Philoponus usually comments on several phrases of the whole passage discussed in the θεωρία. Afterwards, we find a lemma of the next bit of Aristotle’s text, followed by its θεωρία and its λέξις in turn, and so forth.

It is important to note that the form of the commentary is a matter of conscious choice: we have evidence from at least two segments of the commentary that Philoponus deliberately chose to use this form of commenting on Aristotle’s Physics. The first, and stronger, piece of evidence derives from a passage where Philoponus refers to things already mentioned in the previous θεωρία, namely in the third θεωρία of chapter IV, 4. This remark shows the form in which the commentary is constructed; there always is a θεωρία presenting and analyzing the arguments followed by its λέξις, which briefly clarifies some terms and sentences. The second piece of evidence appears at the end of the second θεωρία of chapter IV, 4. This is a significant passage because, as we shall see, it announces the digression on place. The last sentence of this passage reads: «μετὰ τὸ ἐπεξελθεῖν τὸ ῥητὸν ἐροῦμεν», in Phys., 552, 13. According to the proposed interpretation, «τὸ ῥητὸν» refers to the immediately following λέξις and the verb «ἐροῦμεν» to the digression on place that comes after. In other words, Philoponus, in finishing this θεωρία, announces that he will run through the λέξις, and that after that he will return to examine some arguments.

During the 5th and 6th centuries the commentators had already developed characteristic forms of articulating their commentaries: even the commentators of different schools and times constructed commentaries in similar ways (see, for example, Alexander and Philoponus’ commentaries on the Meteorology). The θεωρία-λέξις form relates to the lectures given in the philosophical school. One pair of θεωρία-λέξις corresponds to a lecture or a

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32 Lemmas should not be considered as parts of commentary’s form. It seems that the lemmas are added either by editors of such commentaries or at some point in the manuscript tradition. We should not forget that commentaries used to be written in the margins of the page, around the text that they comment on. Thus commentaries are linked to specific lines of the commented text; lemmas help us to identify where the comments refer to.

33 Philoponus says in Phys., 591, 23-24: ‘This is how some people have explained these passages, as we have already said before in the theoretical introduction to the lecture’, transl. Algra—Ophuijsen 2012, p. 77.

34 Algra—Ophuijsen (2012, p. 67) translate the sentence as ‘we will expound after having gone through the text’, following the same interpretative line.
lesson in the school. Among the commentaries by Philoponus preserved for us, only the commentary on the *Physics* is constructed according to the *θεωρία-λέξις* form. This form of commentary seems to follow a tradition, which derives from the head of the school of Alexandria, i.e., Ammonius Hermeiou. As evidence for this hypothesis, a similar form, among the commentaries of the school of Alexandria, seems to be found in the commentary on the *Metaphysics* by Asclepius, which seems to be earlier than Philoponus’ commentary on the *Physics*. This commentary, transmitted as ἀπὸ φωνῆς Ἀμμωνίου Ἑρμείου, appears to have been constructed according to the *θεωρία-λέξις* form. This evidence suggests that Asclepius’ commentary used Ammonius’ form of constructing his lectures, since it reflects the teachings of Ammonius. Certainly, Philoponus and Asclepius both followed the paths of Ammonius’ teachings in some of their commentaries.

To conclude, the *θεωρία-λέξις* form of Philoponus’ commentary allows us to decipher the way in which the commentators taught philosophy since a commentary was usually either a text which derived from teachings or a text destined to be taught to pupils. The *θεωρία-λέξις* form clearly indicates the educational function of the commentary. The *θεωρία* section collected Aristotle’s arguments, analyzing the syllogisms and sometimes providing historical background on how an Aristotelian passage had been treated prior to Philoponus. The *λέξις* section clarified the meanings of some words and phrases and, in addition, gave a brief exegesis of a lemma. Thus, a commentary structured according to this form provided the pupil with a line by line overview and analysis of an Aristotelian work by bringing forward

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35 Later, in Olympiodorus, it appears that lessons were mainly called *θεωρία* and, at least in one case, πρᾶξις. Sometimes Olympiodorus starts a lesson by referring to what was said yesterday in the school (Olymp., *in Meteor.*, 16, 25-17, 1; 31, 3-4). Also see Olymp., *in Cat.*, 70, 11; *in Meteor.*, 69, 26; 89, 12-13; 94, 17-18 and *in Gorg.*, 48,10,1-3. The terms *θεωρία* and πρᾶξις also occur in Elias, David and Stephanus’ works. See Elias, *Proleg.*, 2, 31-32; 29, 2; *in Isagoge*, 38, 25-26; 42, 10; 79, 6-7; 90, 28; 94, 30. David, *in Categ.*, 108, 14; 117, 13-14; 123, 11; 124, 24; 190, 23; *in Proleg.*, 2, 24; 6, 21; *in Isag.*, 83, 6, 107, 19. Stephanus, *in De interpr.*, 2, 9-10; 6, 32; 8, 28; 37, 29; 65, 26. In some cases these terms do not appear within the text; however, we can assume that this is the terminology used by teachers and students in the school of Alexandria during the 5th and 6th centuries. But the issue seems to be more complicated. I only wish to make a few remarks on the subject. It seems that both terms, i.e., *θεωρία* and πρᾶξις, are used to mean the same thing, namely a lecture or lesson. Yet the fact that we have titles like πρᾶξις ἑαυτῷ at the beginning of a lecture cannot mean that the commentator separates his lectures that way. It could be the case that these titles are not parts of the commentary itself, but rather a matter of editing the commentary. I also often doubt that even the standard expression «ἐν οἷς ἡ πρᾶξις/θεωρία» (which is found at the end of many sections of the commentaries) derives from the hands of the commentators and not from the hands of copyists. My doubts are based on differences found in different manuscripts of the same text. There is a case where the expression occurs in margine (David, *in Categ.*, 178, 12). In two cases there are manuscripts where one gives θεωρία and the other πρᾶξις in the same line of the text (David, *Proleg.*, 8, 19-20; and *in Isag.*, 99, 28). Another example is a sentence which contains both terms: «ταῦτα ἐγέρει ἡ θεωρία καὶ ἡ πρᾶξις» (David, *in Isag.*, 113, 8-9). In general, it is safer to trust the terms found within the body of the exegesis than those found in the beginning or the end of a commentary section.

36 For example, a *θεωρία-λέξις* pair in Asclepius’ commentary on the *Metaphysics* is the following: *in Metaph.*, 63, 25-65, 28 and 65, 29-35.
Aristotle’s accounts and discussing the problems that had been raised during a long philosophical tradition dealing with Aristotle’s text.

1.2 Dividing Aristotle’s Physics into lectures

Philoponus develops a double methodological approach within the theoretical part of the lectures (θεωρίαι): (a) his own method of articulating Aristotle’s text and (b) his method of presenting Aristotle’s approach to his subjects of inquiry. The latter also relates to the methods of explanation that Philoponus elaborates. His commentary is not supposed to be just a compilation of comments. Another aspect of the commentary’s form is that it offers a structured reading of the Physics. The commentator establishes his personal articulation of Aristotle’s arguments and text, just as generally happens in the commentary tradition. In what follows, the starting point of the discussion is the question: what does the division of Aristotle’s text into lectures mean? To put it differently, how did Philoponus structure his courses and divide Aristotle’s Physics? In addition, one may ask: how does Philoponus introduce and explain Aristotle’s arguments? The investigation of Philoponus’ approach will focus on the chapters which deal with place and the void (in Phys., IV, 1-9). Before examining Philoponus’ approach in more depth, it is useful to note the division of Aristotle’s Physics IV, 1-9 and the corresponding lectures in Philoponus’ commentary, as in Table 1:
Let us begin with the question: how does Philoponus present Aristotle’s arguments of Physics IV, 1-9? Philoponus often prepares more than one lecture for each chapter of the Physics (as indicated in Table 1). In the commentary on IV, 1-9 we find three cases where

<table>
<thead>
<tr>
<th>Aristotle’s Physics IV, 1-9</th>
<th>Philoponus’ commentary on Physics IV, 1-9</th>
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<tbody>
<tr>
<td>IV, 1 (208a27-209a2)</td>
<td>IV, 1 (496, 5-501, 20)</td>
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<tr>
<td>IV, 1 (209a2-30)</td>
<td>IV, 1 (504, 8-510, 26)</td>
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<td>IV, 2 (209a31-210a13)</td>
<td>IV, 2 (514, 7-519, 8)</td>
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<td>IV, 3 (210a14-b8)</td>
<td>IV, 3 (526, 10-528, 22)</td>
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<td>IV, 3 (210b8-31)</td>
<td>IV, 3 (533, 20-536, 20)</td>
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<td>IV, 4 (210b32-211b5)</td>
<td>IV, 4 (539, 17-543, 4)</td>
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<td>IV, 4 (211b5-212a7)</td>
<td>IV, 4 (546, 25-552, 13)</td>
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<td>IV, 4 (212a7-30)</td>
<td>IV, 4 (585, 5-589, 26)</td>
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<td>IV, 5 (212a31-213a11)</td>
<td>IV, 5 (593, 11-600, 24)</td>
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<td>IV, 6 (213a12-b29)</td>
<td>IV, 6 (606, 25-610, 23)</td>
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<td>IV, 7 (213b30-214a26)</td>
<td>IV, 7 (616, 9-619, 22)</td>
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<td>IV, 7 (214a26-b11)</td>
<td>IV, 7 (623, 19-628, 24)</td>
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<td>IV, 8 (214b12-28)</td>
<td>IV, 8 (630, 6-634, 2)</td>
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<td>IV, 8 (214b28-215a24)</td>
<td>IV, 8 (636, 23-642, 26)</td>
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<td>IV, 8 (215a24-216a11)</td>
<td>IV, 8 (645, 27-651, 4)</td>
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<td>IV, 8 (216a11-b21)</td>
<td>IV, 8 (660, 7-662, 27)</td>
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<tr>
<td>IV, 9 (216b22-217a21)</td>
<td>IV, 9 (667, 6-671, 2)</td>
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<tr>
<td>IV, 9 (217a21-b28)</td>
<td>IV, 9 (695, 9-699, 26)</td>
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Philoponus has just one lecture that covers the whole chapter: these are chapters IV, 2, IV, 5, and IV, 6. The remaining comments on the chapters of book IV (chapters 1, 3, 4, 7, 8, 9) are divided into two, three, or even four lectures, as, for instance, the section IV, 8. Every lecture divides each chapter into parts according to the way in which Philoponus decides to teach Aristotle’s text. Sometimes Philoponus follows Aristotle’s divisions: for example, when Aristotle examines the question, “What is place?” (Phys. 209a2-30), Philoponus prepares a single lecture (in Phys., 504, 8-510, 26) containing all Aristotle’s arguments on this question. However, there are cases where Philoponus divides the text according to his own priorities. A striking example is the second lecture of chapter IV, 9 (in Phys., 695, 9-699, 26), where Philoponus cuts off Aristotle’s sentence in the middle (Phys. 217a21), places his digression on the void in between the two halves, and then starts a new unit with a new lecture. In this way, Philoponus offers his own understanding of how the text should be read and how it should be separated into units. In addition, he carefully distinguishes units within the chapters of the Physics.

It is also worth pointing out that Philoponus systematically lists Aristotle’s arguments. But as we have seen, the θεωρία section is not just an enumeration of arguments. Philoponus often tries to analyse an argument which Aristotle sketched in rough outline. He also tries to reconstruct arguments by revealing hidden premises. The obscurity of Aristotle’s words (ἀσάφεια), notorious among the commentators of Late Antiquity, sometimes forces Philoponus to analyse these arguments. A commentator’s duty, roughly speaking, is to unveil the hidden meaning of Aristotle’s sayings.37 In the context of clarifying the Aristotelian word, Philoponus in his lectures provides examples and raises questions of his own, as we shall immediately see.38

A lecture always begins with the description of Aristotle’s method of approaching the subjects of inquiry.39 Philoponus recapitulates in a few lines what Aristotle has previously said and what he is planning to say. This methodological approach does not solely occur at the beginning of the lecture but also within it, when a unit is completed and a new issue is

38 Can these examples and questions be considered as a simple presentation or explanation? I will argue later that, despite the traditional way of explaining and commenting on Aristotle’s words, in Philoponus’ case a lecture moves beyond simple exegesis (see below section 1.6).
39 A characteristic example appears in this passage (in Phys., 636, 25-28): ‘Having shown that the void is not a cause of motion either as efficient or as final, he wants finally to show that neither can the void be a cause of motion as through which, like the instrumental, but before that he takes up the things that have been said and shows what follows from these for their hypotheses’, trans. Huby (2014), pp. 37-38. Algra—Ophuijsen (2012, p. 2) argue that Philoponus was influenced by Alexander’s of Aphrodisias style of structuring Aristotle’s arguments.
raised. One reason that Philoponus includes this methodological element in the theoretical part of the lecture is to make the exegesis comprehensible to the audience. It is helpful for the students to have a clear, concise reminder of what Aristotle said and of what Philoponus is intending to say in the following section.\textsuperscript{40} Another reason is Philoponus’ concern, as a commentator, to introduce Aristotle’s method of approaching the issues in the \textit{Physics}. Commentators follow a general structure according to which they comment on the philosophical works of Aristotle and Plato. The exegesis attempts in various ways to make the arguments of these works comprehensible. Here I will present some basic examples taken from Philoponus’ commentary.

First, Aristotle’s arguments are categorized: the commentator distinguishes the arguments, so that pupils can understand the sequence of the arguments more easily.\textsuperscript{41} Second, Philoponus uses other texts of Aristotle to clarify particular notions or phrases. Parallel texts are mainly used to show that Aristotle has coherent views, though sometimes they set up a new discussion in order to further explain an Aristotelian argument.\textsuperscript{42} For us today, parallel texts are valuable from a philosophical point of view but also because they inform us about those of Aristotle’s books that Philoponus was using when he commented on the \textit{Physics}. Parallel texts are also employed to quote from other commentators when either a different interpretation or support for the Aristotelian view is needed. Philoponus sometimes names other commentators; generally, however, he does not name his source and uses the indefinite expression «οἱ ἐξηγηταί».\textsuperscript{43} Third, Philoponus changes his manner of speaking, as though making an oral presentation (which, of course, may be the case if this commentary derives from teachings).\textsuperscript{44} Fourth, in the running commentary Philoponus praises the utility of some Aristotelian ideas, examples, and views.\textsuperscript{45} The background for praising Aristotle’s well-constructed arguments and examples connects to Aristotle’s (and Plato’s) authority. Aristotle stands as the philosopher who teaches (\textit{διδάσκει}); the commentators, and their

\textsuperscript{40} For example, see \textit{in Phys.}, 496, 5-9; 514, 10-18.
\textsuperscript{41} The following text is a characteristic example of this categorization (\textit{in Phys.}, 500, 26-30): ‘These arguments are based on actual facts. The remaining two, however, are based on received opinions and on the testimony of earlier thinkers. The fourth one comes from those who introduce the void [...]’. The fifth one is that Hesiod [...], trans. Algra—Ophuijsen 2012, p. 21.
\textsuperscript{42} For instance, see \textit{in Phys.}, 500, 6; 598, 17; 609, 16; 616, 11.
\textsuperscript{43} See \textit{in Phys.}, 526, 29-30; 528, 2; 541, 7; 594, 14; 701, 1-5.
\textsuperscript{44} Verbs in either the first or second singular person are an example of this, as, for instance, in the following quotation (\textit{in Phys.}, 518, 10-11): ‘You can reduce the argument to a syllogism of the first figure as follows [...]’, trans. Algra—Ophuijsen 2012, p. 36. These changes of style relate to explanations of dense and elliptical texts of Aristotle. We find such changes also when Philoponus adds his own examples while explaining Aristotle’s argument (\textit{in Phys.}, 500, 19-20): ‘Hence if I turn the triangle around, I thereby create another top, and another base, and I switch the position of the sides’, trans. Algra—Ophuijsen 2012, p. 20.
\textsuperscript{45} See \textit{in Phys.}, 531, 19-20; 543, 13-25.
students, are those who learn (μανθάνομεν, γινώσκομεν). Fifth, Philoponus appears to worry about the philosophical correctness of Aristotle’s arguments.\(^{46}\) The explanation of the argument is sometimes its reconstruction. The exegesis does not aim to fill possible gaps or to clarify obscure points, but it attempts to save the philosophical coherence of Aristotle’s statements. In other words, the reconstruction of Aristotle’s arguments assures students of their philosophical exactness. Moreover, in some cases arguments are first presented and then re-presented according to a different logical method, for instance, the method Philoponus calls «ἐκ διαιρέσεως».\(^{47}\) In other cases, Philoponus points out that the argument under examination does not derive from the previous one, but should rather be examined together with another argument.\(^{48}\) Sixth, the exegesis includes also textual comments. The commentator sometimes had different manuscripts of the same text.\(^{49}\) Philoponus discusses alternative phrases or words in Aristotle’s text. Further, he makes grammatical comments and proposes alternative words in order to explain Aristotle’s meaning.\(^{50}\)

The six aforementioned methods of explaining Aristotle’s arguments relate to the task of the exegesis. Aristotle’s text must not have obscure parts; everything must be illuminated. Arguments should be sound, eloquent, and comprehensible. In fact, obscurity (ἀσάφεια) often troubles the commentator.\(^{51}\) It is well-known that Aristotle’s commentators discussed obscurity as one of the ten introductory issues in the proems of their commentaries on the Categories—‘the reasons why Aristotle tends to be obscure’\(^{52}\). Aristotle, according to the commentators, tends to be obscure, and he has a reason for this. The reason relates to a concern that Aristotle may plausibly have had: to make his pupils cleverer and to deter the careless ones. Furthermore, his obscurity forces the real student of philosophy to fight and struggle in order to reach the philosophical depths. Obscurity hides the noble and modest

\(^{46}\) Evidence of this is, for example, the passage in *Phys.*, 535, 15-20: ‘And no one should demand that the explanation we have given of the incidental fits directly the case of the jar […] We have yet to find out how we can accommodate the incidental in this case as well, given the fact that there is no other way the concept of the incidental can possibly be saved than in the way we have explained’, trans. Algra—Ophuijsen 2012, p. 52.

\(^{47}\) in *Phys.*, 547, 20-22 cf.; 672, 7-12. The «ἐκ διαιρέσεως» method, a terminus technicus, clarifies a concept in reference to a scheme of logical distinctions.


\(^{49}\) Philoponus’ comments on textual variants are evidence that, in the school of Alexandria, Aristotle’s texts were available in many manuscripts and that Philoponus used at least two versions of the *Physics*.

\(^{50}\) Grammatical and textual problems are some of the matters the exegesis deals with. See in *Phys.*, 540, 22-30; 653, 17-22; 701, 1-5.

\(^{51}\) See, for example, Philoponus, in *Phys.*, 635, 24-25; 672, 7-12; 696, 17.

\(^{52}\) I quote the explanation given by Philoponus of Aristotle’s obscurity in the proem on the *Categories*: ‘He (i.e., Aristotle) deliberately used this obscurity because of the students, in order to make them cleverer at listening to the ordered character of what has been said, and in order to deter careless disciples from the beginning; for the true disciples will struggle to understand and to reach the depths even more if what is being said is said obscurely. He used obscurity just as a cover for the uninitiated people, clothing the noble in obscurity’, in *Categ.*, 6, 22-28.
thoughts that one may discover in philosophy. Such was Aristotle’s authority that the commentators could not think of his obscurity as a bad argument or misstated view. Thus the commentators take it to be a choice to strengthen the strong minds and prevent the lazy ones. This seems to be the general opinion concerning Aristotle’s obscurity: it is a planned obscurity. Nonetheless, we should be mindful of a distinction that often appears in Philoponus: Aristotle’s obscurity is at times treated as a real philosophical problem. Philoponus sometimes emphasizes the need for a re-examination of the truth of Aristotle’s statements and sometimes takes the obscurity as opportunity for mental exercise.

In several instances, obscurity occurs together with the term «γυμνάζειν», especially in the main body of Philoponus’ exegesis of the Physics. The meaning of the term is ‘to train’, ‘to exercise’. The exegesis points out the obscurities but also the mental exercise that derives from solving these obscurities. In Philoponus, the term «γυμνάζειν» occurs within the framework of the term «σαφηνίζειν». The exegesis aims to achieve exact knowledge of how philosophical inquiries are constructed and of the debates on these inquiries. The mental exercise results from the greater effort needed to comprehend the argumentation because it involves a certain level of mental difficulty. The expression «γυμνάζειν τὸν λόγον» is used to note either that Aristotle works through an argument or that the commentator himself will mentally work through an argument, or an example. In both cases, the relationship between eliminating the obscurity and working through the argument is significant for the task of explaining Aristotle’s statements to the pupils. Everything considered, the explanation of an obscure argument can be extremely challenging for the commentator.

Up to this point, I have presented the form and the methods Philoponus deploys to build his running commentary on the Physics—that is to say, the part where he explains Aristotle’s text. We have seen how the form of the commentary (θεωρία-λέξις) reflects his teachings and his readings of the Physics. Next, I will examine the relationship between the exegesis and other sections of the commentary carrying out novelties from Philoponus’ part.

53 Usually, it appears in similar context as the following one (in Phys., 504, 14-17): ‘The arguments on both sides of the question are such as to exercise the mind and to provide an exact understanding of the subject matter, not only in so far as the problem itself gets clearly delineated, but also in so far as the accounts try to destroy it (i.e. place) are being refuted’, trans. Algra—Ophuisen 2012, p. 24.
54 For example, in Phys., 55, 24-26; 65, 3-6; 119, 26-27; 502, 15; 507, 17; 549, 28-29; 589, 29; 667, 28-31.
55 An example of such difficulties is the following: «ἀσαφής δὲ πάνω ὁ τῶν λέξεων νοῦς, καὶ εἰ μὴ αὐτός ἐν τοῖς τοῦ κενοῦ λόγοις ἡμὴν ἑαυτόν, ἔμεινεν ἐν ἀνερμήνευτος», in Phys., 548, 16-549, 11. Philoponus himself gives an example of his own to help the comprehension of this argument, and he does so in terms of exercising the mind (in Phys., 549, 28-29).
1.3 A note on Vitelli’s edition

Having discussed the form of Philoponus’ commentary, I will now consider the basic edition in which it has been published. The series *Commentaria in Aristotelem Greaca* (henceforth *CAG*), published in the 19th century by the Academiae Litterarum Regiae Borussicae, has been commonly accepted as the most significant work on the commentary tradition of Late Antiquity since the first printed editions appeared in Venice from the mid-16th century onwards. With its publication, the texts of the Aristotelian commentators were finally accessible for study. The publication of the *CAG* editions prompted the study of the ancient commentators, which has now flourished for approximately 100 years. This current flourishing has, however, also revealed the need to revise some of these monumental editions—or perhaps to re-edit some of the texts.56

Hieronymus Vitelli edited Philoponus’ commentary on Aristotle’s *Physics* and published it in two volumes in the *CAG* series (*CAG*, XVI, published in 1887, and *CAG*, XVII, published a year later, in 1888). Vitelli’s edition has one major disadvantage: it fails to render the form of the commentary accurately. If we look carefully at Vitelli’s edition, we see that the θεωρία-λέξις form, according to which the commentary is structured, is not properly presented.57 A closer reading of the text in the *CAG* edition shows that many of the θεωρίαι end in a paragraph which starts with a lemma from Aristotle’s text. But this is incorrect: these paragraphs do not belong to the θεωρίαι and should be separate from them in the text.

Vitelli misunderstood the method by which Philoponus constructed his commentary: this is why he sometimes mistakenly placed the first comment of the λέξις section at the end of a θεωρία. The reason I believe that these final paragraphs really belong to the λέξις sections is that they are short comments on phrases of Aristotle, which is the typical form of a λέξις.58 It is easy to recognize them in the *CAG* edition because Vitelli starts a new paragraph at the end of the lecture (θεωρία) and types the first sentence(s) of these comments, leaving one space between each letter, just as he does with lemmas. The point is that Philoponus, after the presentation and analysis of the arguments in a segment of Aristotelian text, often then comments on the first sentence of that segment. But this indicates the start of the λέξις

57 The problem has already been noted. See Golitsis 2008, p. 57, n. 70; Osborne 2006, pp. 7-8.
58 Some characteristic examples of the long list of these paragraphs are: *in Phys.*, 501, 13-20; 518, 26-519, 8; 589, 19-26; 699, 21-26.
section. In other words, Philoponus’ commentary often comments twice on one phrase—i.e., on the same lemma from Aristotle’s text—first in the \textit{θεωρία} and then in the \textit{λέξις}.

The question is: why did Vitelli misunderstand the form of the commentary? I argue that the source of this mistake is the way lemmas are presented in the manuscripts. Lemmas were not chosen by the commentators, but by copyists or by whoever edited the commentary. The role of a lemma is to indicate what the comments refer to. Different manuscripts, even those belonging to the same family, present lemmas differently. Vitelli’s edition is mainly based on three manuscripts: the Laur. Plut. 87, 6 (G), the Marc. gr. 220 (K), and the Marc. gr. 230 (M). Moreover, Vitelli relied heavily on Trincavelli’s first printed edition of the text (Victor Trincavelli, \textit{Ioannis Grammatici in primos quatuor Aristotelis de naturalia auscultatione libros commentaria}, Venice, 1535).

The oldest manuscript, the Laur. Plut. 87, 6 (12\textsuperscript{th} century, henceforth Ms. G), articulates the Aristotelian text and Philoponus’ comments in an intricate way. Ms. G provides the whole text of Aristotle that is examined in each \textit{θεωρία}, not merely its first lines. The same applies to the lemmas of the \textit{λέξις}. Moreover, the lemmas of the \textit{λέξις} section are presented as distinct paragraphs, indicated by paragraph marks and by numbers \textit{in margine}. Each lemma from the Aristotelian text and the subsequent comment by Philoponus has a corresponding number. The crucial passages, which Vitelli kept as the last paragraph of the \textit{θεωρία}, appear in Ms. G as separate paragraphs (indicated by signs) at the end of the \textit{θεωρία}, without a lemma quotation from the Aristotelian text.

The codex Marc. gr. 230 (Ms. M), dated, according to Vitelli, to the 14\textsuperscript{th} century, has quotation marks \textit{in margine} for the lemmas of Aristotle’s text, and rather than providing long sections of the text, just one or two sentences are given. The quotation marks \textit{in margine} clearly separate the \textit{θεωρία} sections from the \textit{λέξις} sections. So the comments that Vitelli includes in the \textit{θεωρία} are not presented as parts of the \textit{θεωρία} in Ms. M.

Finally, in the codex Marc. gr. 220 (Ms. K), dated to the 15\textsuperscript{th} century, marks (double dots) separate the lemmas from Philoponus’ comments. The lemmas usually consist of a few Aristotelian words. The comments that Vitelli includes in the \textit{θεωρίαι} are clearly separated from the \textit{θεωρίαι} with lemmas in Ms. K.

Vitelli’s edition partly follows Ms. G, in that it articulates these comments as a paragraph of the \textit{θεωρίαι}, and partly follows Mss. M, K, in that these comments appear after their lemmas. I assume that Vitelli thought this was the best way to stay close to the manuscript tradition. According to this view, the reason Ms. G does not indicate the first comment of some \textit{λέξις} with a lemma and a number, but only with paragraph marks, is that
the lemma of this very first comment of the λέξις section has already been given in the lemma introducing the θεωρία. But this does not mean that it should be considered part of the θεωρία section: it is clearly separated from the θεωρία by the paragraph marks. What Mss. M and K do is to repeat some words of the lemma of the θεωρία in order to show that these comments are λέξεις.

The θεωρία-λέξις form of the commentary is falsely presented if these passages appear as the last paragraph of the θεωρία. Philoponus considers it necessary to comment briefly on the lemma which heads the previous θεωρία, whether he has said something about it in the θεωρία or not. This is not a rule of the θεωρία-λέξις form, but rather a matter of exegesis: if the lemma needs a word by word explanation, then Philoponus includes this second exegesis. What Vitelli seems to have missed is that these paragraphs should open the λέξεις section. His confusion is also indicated in the way he uses lemmas above a θεωρία or a λέξις section, in his edition: wherever he thinks that a λέξις section starts, he clearly separates them form the θεωρία section with lemmas, though he does not so in the cases discussed here. But the manuscript tradition, either by separating the comments as paragraphs without a lemma or by separating them with a lemma, suggests that these are comments belonging to the λέξεις section not to the θεωρία. Moreover, the form and the content of these comments show where they belong. The correct way to present the θεωρία-λέξις form is to place the lemmas above these paragraphs to and to separate them from the θεωρία. Although Vitelli’s edition is faithful to the transmission of the text in the manuscripts he, nevertheless, misinterprets the form of the commentary.

1.4 Defining corollarium and digressio
Philoponus’ commentary on the Physics has become famous since antiquity for two main reasons: the critique of Aristotle’s theory of place and his views on the void found in the so-called Corollarium de loco and the Corollarium de inani respectively, and the theory of the forced motion of projectiles (impetus). But before considering in more depth how Philoponus rejects Aristotle’s account, it is necessary to ask what the word ‘corollarium’ means.

In standard Latin the word ‘corollarium’ means ‘money paid for a garland, a gift, a present, a gratuity’; in logic it means ‘deduction’. The word ‘corollary’ in English, which

comes from the Latin ‘corollarium’, means, as a noun, ‘a logical proposition that follows from one already proved, a direct consequence, a result’ or, as an adjective, ‘supplementary, something which comes to complete, an accomplishment’. In Philoponus’ commentary, the words ‘corollarium’ and ‘corollary’ are used to mean those parts of the commentary which complete the comments. The term «πόρισμα» would have the closest meaning in Greek to ‘corollary’. We do have, however, one piece of evidence for what these parts of the commentary were called in Greek: the word «παρέκβασις» written in margin of the manuscript Marc. gr. 230 (Ms. M²) by an unknown hand at the point where the texts on place, on the motion of projectiles (impetus), and on the void respectively start. The Greek word «παρέκβασις» literally means in English ‘going aside from’ or ‘a deviation from constitutional forms’.

Unfortunately, Philoponus himself does not use any term to describe these two parts of his commentary. Philoponus refers to the part dealing with place—, I leave aside the section on the impetus theory for the moment—with the expression «ἐν τοῖς περὶ τοῦ τόπου λόγοις». Although we do not know if Philoponus would have called these two parts (on place and the void) «παρεκβάσεις», it seems to be a reasonable speculation. But a problem arises: whether the word ‘corollary’ (which has traditionally been used for these texts from the 19th century onwards) and the word «παρέκβασις» are compatible with each other. For to say that these texts just complete the exegetical comments on place and the void (i.e., are corollaries) and to say that these texts go aside from the exegetical comments or interrupt the course of the commentary (παρεκβάσεις) are different things.

When we reach the point in the commentary where these parts—i.e., the sections on place and the void—start, it is obvious that the continuity of the comments has been interrupted. Two passages, one before the section on place and one before the section on the void, announce that the comments will cease for the moment and that a discussion of Aristotle’s accounts will begin. But what do we mean by interruption here? In my view,
interruption should be understood as deviation from θεωρία-λέξις form of the commentary—i.e., a παρέκβασις. This is announced, first, by the introductory comments to the digressions. Second, the first sentence of each παρέκβασις shows that we have now left aside the exegesis.64 These parts of Philoponus’ commentary are closely related to his exegetical comments on Aristotle’s accounts of place and the void; in that sense, these texts are not παρεκβάσεις—they are not true interruptions in that they do continue to develop the commentary’s conceptual concerns. Nevertheless, these texts can be considered as παρεκβάσεις in the sense that they break up the main form of the commentary, since they interrupt the continuity of the θεωρία-λέξις-θεωρία-λέξις schema.

If the texts on place and void can accurately be described as «παρέκβασις», it seems awkward to use the word ‘corollary’ to refer to these two parts of Philoponus’ commentary. These two parts of the commentary are παρεκβάσεις, namely texts which go aside from the form of the commentary. For this reason, I will refer to the two texts on place and the void as «παρέκβασις», translated as ‘digression’, not as ‘corollary’, since the latter term fails to convey the idea that the form of the commentary has been interrupted.65

1.5 Corollaries and digressions in the Physics commentary

The distinction between ‘corollary’ and ‘digression’ produces a further distinction between several passages in Philoponus’ commentary on the Physics that cannot be characterized simply as exegetical comments. In fact, I am inclined to think that we can find within the commentary both corollaries and digressions. Although I do not want to use ‘corollary’ to describe the sections where Philoponus expounds his own account of place and the void, I am ready to accept the term for other parts of the commentary. Therefore, I claim that corollaries are comments in which Philoponus expresses his own arguments and appears to criticise Aristotle but does so in order to complete the Aristotelian argumentation without interrupting the θεωρία-λέξις form of the commentary. In other words, they are critical comments on the exegesis of a specific argument within the exegetical framework. Some of these corollaries

appear in the θεωρία section and some, surprisingly enough, in the λέξις section. Here is a list of the corollaries found in the commentary:66

1. Corollary on the generation of being (θεωρία, 54, 8-55, 26).
2. Corollary on matter (θεωρία, 191, 9-192, 2).
3. Corollary on ideas/forms (λέξις, 225, 4-226, 11).
4. Corollary on a possible objection to Aristotle concerning motion (λέξις, 384, 3-385, 11).
5. Corollary against the eternity of time (θεωρία, 456, 17-458, 31).
7. Corollary rejecting the suggestion that the place of bodies has a power or quality (θεωρία, 632, 4-634, 2).
8. Corollary on the forced motion of projectiles, i.e., impetus theory (θεωρία, 639, 3-642, 26).
9. Corollary on the fact that nothing moves against nature through void (λέξις, 644, 15-22).
10. Corollary against some people who state that the reason that two bodies cannot be in the same place and that heaven does not rise in waves (κυμαίνει ὁ οὐρανός) is the condensation (πύκνωσις) and rarefaction (μάνωσις) of bodies (θεωρία, 697, 25-699, 20).
11. Corollary on time and corruption (θεωρία, 748, 7-33).
12. Corollary on being in motion with regard to the whole and to the parts, because of being in place with regard to the whole and to the parts (λέξις, 774, 6-775, 5).

The digressions, on the other hand, are systematic argumentations, which interrupt the continuity of the θεωρία-λέξις form, and attack the whole Aristotelian theory of place and the Aristotelian argument that motion in void cannot occur. Here are the digressions found in the commentary:

1. Digression on place (557, 8-585, 4).
2. Digression on the void (675, 12-695, 8).

66 I have not included in the list Philoponus’ critical comment where he distinguishes his own interpretation from Themistius’. See in Phys., 671, 7-672, 17.
What allows us to identify an internal boundary in Philoponus’ commentary, and thus distinguish the corollaries and digressions from the remaining exegetical comments? In general, there are three characteristics which corollaries and digressions have in common. First, both digressions and corollaries make use of the first person singular or plural of verbs and of the personal pronoun (ἐγώ, ἡμεῖς). The commentator frequently, and explicitly, uses these forms, which indicate that this section of the commentary is a corollary or a digression, in order to separate his position from Aristotle’s account.

Second, the corollaries and the digressions are not just exegetical comments, even though the corollaries are placed within the exegetical framework. Philoponus seems to care about the cogency of Aristotle’s arguments, and he seems to care about the truth. He often aims to clear up the misconceptions and fallacies that arose from Aristotle’s views of place and void by demonstrating that there is no necessity in some of Aristotle’s arguments; it turns out that Philoponus tries to reestablish the truth about natural phenomena in these sections. In more or less every corollary and digression we find this intention, which goes beyond a simple clarification—it provides a new argument.

Third, the method used in the corollaries and the digressions is similar in every case. That is to say, most of the comments are just explanations and presentations of arguments, but when a corollary or a digression is introduced, Philoponus usually quotes Aristotle’s arguments and then proceeds to reject them by developing his own arguments during the discussion.

These shared characteristics are found in both corollaries and digressions and differentiate them from the exegetical comments. Nevertheless, there is a crucial difference in the way Philoponus introduces corollaries and digressions: in the case of the two digressions on place and the void, Philoponus announces the interruption of the comments (in Phys., 552, 10-13; and 651, 1-4), whereas corollaries appear in the exegesis without any previous indication—this is because corollaries are considered to be (ad hoc) criticisms, closely related to the exegesis.

The distinction, that I wish to make, between corollaries and digressions and their relation to the general form of Philoponus’ commentary, the θεωρία-λέξις form, affects the picture that modern scholarship has had of the whole commentary on the Physics. The advantage of this distinction is that it explains why the digressions are placed as they are and

67 See in Phys., 557, 9; 632, 7; 639, 4-5; 676, 1-2; 680, 24-26.
68 Ibid., 651, 1-4; 687, 23-24.
69 «σύγχυσις», ibid., 567, 5; «παραλογισμός», ibid., 685, 23.
shows the function of all the corollaries found in the running commentary. This distinction between corollaries and digressions is not compatible with the most recent presentation of Philoponus’ commentary, namely that of Golitsis.

Golitsis argues that Philoponus’ commentary contains three digressions: one on place, one on the void, and one against the eternity of time (Corollary 5 of my list). Golitsis names the first two digressions, according to his division, ‘scientific digressions’, and the third a ‘polemical digression’. Golitsis argues that the digression, as he calls it—I take it to be a corollary—against the eternity of time belongs to a category of digressions concerned with points to the exegesis. I do agree that the corollary on the eternity of time closely relates to points of the exegesis since the corollary follows the exegesis of Aristotle’s argument on the eternity of time (Phys., 206a25cf.). And I do agree that this corollary is polemical. What seems inconsistent to me in Golitsis’ definition of a digression is this: Golitsis says that he will also examine another section of the commentary, that in which Philoponus expounds the impetus theory, but he states that this section does not belong to any of the categories of digressions he has already mentioned.

In addition to this, Golitsis argues that the corollary on the eternity of time is the only part of Philoponus’ commentary that qualifies as a digression (apart from the digressions on place and the void). But, seen side by side, the section against the eternity of time and the section on the impetus theory, share the same characteristics: for example, both sections are related to points in the exegesis and both texts are polemical. So, if the section on the impetus theory is not a digression, according to Golitsis’ categorization, then the section against the eternity of time too should not be considered a digression.

An attentive reading of the commentary shows that Philoponus quite often added arguments at the end of θεωρίαι (or λέξεις), i.e. corollaries, when he thought it necessary. Sometimes these additions have a critical character; the case of the corollary on the forced motion of projectiles is one of them. Although I do not consider this section a digression, it

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70 Golitsis 2008, pp. 87-88.
71 «Digressions portant plutôt sur des points d’exégèse; […] ainsi que la brève digression de Philopon consacrée à l’éternité du temps», (2008, p. 87).
72 «Enfin, nous étudierons les digressions scientifiques des deux commentateurs, auxquelles nous ajouterons le bref excursus de Philopon consacré à la question du mouvement contre nature (In Phys., 693.3-642.26), où il développe sa célèbre théorie de l’impetus. Cette partie du Commentaire ne constitue pas une digression selon les critères formels que nous avons adoptés plus haut; elle se situe néanmoins dans la même perspective que les deux Corollaires sure le lieu et le vide et mérite d’être étudiée avec eux», (Golitsis 2008, p. 88).
73 «Outre ses Corollaires sure le lieu et le vide qui contredisent ouvertement Aristote, la seule autre partie de son Commentaire qui puisse être qualifiée de digression présente, elle aussi, un caractère polémique», Golitsis 2008, p. 124.
has, as I pointed out earlier, been called a παρέκβασις, (codex Marc. gr. 230, f. 143v). But the use of the term—the reader of the codex Marc. gr. 230 noted in margin «παρέκβασις περὶ τῶν ῥιπτουμένων»—can be explained by saying that «παρέκβασις» is used in a rather loose sense. Although the reader of this manuscript and his notes on these significant sections of the commentary inspired my interpretation of corollaries and digressions, I do not agree with his annotations in every respect. I do not read Philoponus’ attack on Aristotle’s view of the motion of projectiles as a deviation from the θεωρία-λέξις form of the commentary. The innovative content of the corollary—the attack actually introduces a new theory of the motion of projectiles (impetus)—makes it tempting to see it as a digression. Nonetheless, formally speaking, this text is a corollary and not a digression: it belongs to the second lecture on Physics IV, 8, as a part of the exegetical comments. Therefore, that a corollary includes original insights is irrelevant to the structure and the form of this commentary.

The picture of the commentary, in Golitsis’ presentation, is of three digressions and a section (on impetus theory), which is closely related to the digressions on place and the void (2008, pp. 87-88). Golitsis does not take any position on the remaining texts (which run to a total of twelve) cited in the list of corollaries above. But these corollaries clearly are texts in which Philoponus adds something more than a simple explanation of the Aristotelian arguments. The distinction between corollaries, which appear in the θεωρία-λέξις form, and digressions, which deviate from this form, provides, I think, sufficient guidelines for reading Philoponus’ commentary.

This discussion on the form of the commentary raises two issues I would like to examine in what follows. First, I will examine the levels of interpretation found in the commentary. Second, I will make a few remarks regarding how legitimate it is for a commentator to interpret and criticize Aristotle.

1.6 Levels of interpretation
The following section deals with the levels of interpretation observable in Philoponus’ commentary on the Physics. The exegesis bears different levels of interpretation, starting from simple aporiai (questions) up to the production of new philosophical theories (digressions). When we read a Late Antique commentary, we immediately realize that there

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74 Indeed, when we read the corollary on projectiles (in Phys., 639, 2-642, 26) the introductory sentence reminds of the digression on place, in which Philoponus claims the cogency of Aristotle’s arguments (in Phys., 639, 3-5): ‘So, in this way, Aristotle showed that motion that is forced and contrary to nature would be impossible, if the void existed; but it seems to me this argument is not at all cogent’.
is a writer (or a teacher) working on and thinking about Aristotle’s text. Commentaries were mostly produced in philosophical schools and, if not, they are still lively and intellectually stimulating texts. Often questions emerged that need to be answered. Philoponus’ commentary has all the characteristics of a typical (Alexandrian) philosophical commentary of the 6th century, but it contains some further innovations, as I have already pointed out.

The first and simplest level of interpretation in commentaries is described by the expression «ἀκουστέον». This technical term appears in the commentary tradition in general. It signifies how Aristotelian arguments or words should be interpreted, either according to the Aristotelian doctrines or according to Philoponus’ exegesis. The expression occurs when Aristotle’s text is not straightforward and easily comprehensible. The commentator clarifies for the pupils how the text should be understood, giving an alternative reading, explanation, or word. This is the simplest and most basic way for the commentator to give an interpretation.

The second level of exegesis appears in the form of questions (ἀπορίαι): these questions may really have been asked, or they may be raised in the commentary in order to object to a hypothetical opponent. These questions (or objections) serve to confirm the proper understanding (ἀκουστέον) of Aristotle’s words. Within the running commentary, two types of ἀπορίαι occur: (1) ἀπορίαι solved within the Aristotelian framework, in the sense that Philoponus uses Aristotle to answer these questions; (2) ἀπορίαι deriving from Aristotle’s discussion but going beyond Aristotle’s worries.

Neither type of question is supposed to be Aristotle’s: these are questions (or objections) set up by the commentator throughout the discussion of Aristotle’s views, and they are either addressed to hypothetical opponents of Aristotle or related to interpretations held by other commentators, or, rarely, addressed to Aristotle. The second type, in particular, often appears as a general question by someone—this could be Philoponus, as, for instance, in the passage in Phys., 509, 15-510, 2. The answer given may represent Philoponus’ answer.

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75 E.g., sentences such as this one: «ταῦτα δὲ ἐκ στοχασμῶν φαμέν· οὐ γὰρ ἔχομεν εἰπεῖν σαφῶς τί βουλόμενος ὁ Ζήνων τούτο ἠπόρει. ἴσως δὲ καὶ τὸ ἀπειρὸν εἰσαγαγεῖν βουλόμενος», in Phys., 513, 11-13.
76 in Phys., 530, 2; 532, 12; 601, 25; 651, 19.
77 It is important to note that I read in margine of f. 18r (counting from the page that starts the commentary on the fourth book in Ms. G, Laur. Plut. 87, 6) the abbreviation of the word «ἀπορία» where the question starts (in Phys., 509, 15), and I read the abbreviation of the word «λύσις» where Philoponus’ answer starts (in Phys., 509, 22). This is the text in which Philoponus raises the question of whether place is the efficient cause of natural motions or not (in Phys., 509, 15-510, 2).
to the question (or objection), or it may be a standard response from the commentary tradition. Significantly, speculation arises from this type of question, which does not seem to have been Aristotle’s intention.

My suggestion is that the habit of posing hypothetical questions and objections through the exegesis cultivates the ground for more profound thoughts, namely the corollaries. According to this view, corollaries constitute the third level of interpretation. I quote the list of corollaries found in the running commentary (in Phys., IV, 1-9):

2. Corollary rejecting the suggestion that the place of bodies has a power or quality (θεωρία, 632, 4-634, 2).
3. Corollary on the fact that nothing moves against nature through void (λέξις, 644, 15-22).
4. Corollary on the forced motion of projectiles, (impetus theory) (θεωρία, 639, 3-642, 26).
5. Corollary against some people who state that the reason that two bodies cannot be in the same place and that heaven does not rise in waves (κυμαίνει ὁ οὐρανός) is the condensation (πύκνωσις) and rarefaction (μάνωσις) of bodies (θεωρία, 697, 25-699, 20).

Indeed, the starting point of a corollary can be thought of as an ἀπορία. But there is a difference. A corollary is a critical comment which offers a new insight to the discussion. Philoponus questions Aristotle and others in the corollaries, and he repudiates unsatisfactory arguments. The corollaries belong to the running commentary because they complete the comments of a section of the exegesis. Corollaries have frequently been thought not to fit the exegesis. Nevertheless, corollaries seem to be necessary for the commentator. Philoponus puts a lot of effort into providing a correct exegesis of Aristotelian arguments—this involves radical criticisms. For example, the corollary on the forced motion of projectiles (impetus theory) is one of the most characteristic polemical corollaries. Philoponus certainly praises Aristotle’s ability to present sound arguments. But sometimes he believes that Aristotle’s arguments lack cogency; they are proved to be false. So, one reason for having polemical corollaries might be that fallacies appear in the course of the exegesis.

80 In several passages Philoponus approves Aristotle. See, for instance: in Phys., 599, 11-12; 620, 4-5.
Corollaries provide a link to the fourth level of interpretation observed in Philoponus’ commentary on the *Physics*. Corollaries, I think, are a necessary step to creating the form of text used in the digressions on place and the void. The digressions on place and the void, however, are not parts of the running commentary: they interrupt the course of the comments, i.e., the sequence of the *θεωρία* and *λέξις* sections. The digressions are fairly long texts in which Philoponus methodically gathers Aristotelian arguments from the accounts on place and the void that are not true according to logical necessity. As will be shown, in the digressions Philoponus repudiates Aristotle’s theory of place and his opinion on the void.

At this level, the text is not just interpretative. In contrast to the running commentary, which is mainly exegetical, Philoponus uses digressions to establish alternative theories. The digressions are interpretations inasmuch as they start from Philoponus’ understanding of specific Aristotelian arguments, but they exceed the exegesis in the sense that they include new theories, new arguments. It is worth pointing out that, after the digression on place, there are signs of Philoponus’ own views within the exegetical comments. A shift can be seen from exegesis to the investigation of how far Aristotle’s views of place and the void are applicable to nature. The levels of interpretation help us to distinguish ‘Philoponus as a working exegete of Aristotle’ from ‘Philoponus as a philosopher of his own right’.

To recapitulate, we first looked at two levels of interpretation: one regarding how Aristotle’s words should be understood (*ἀκουστέον*) and another based on questions (or objections) concerning the exegesis, usually supporting Aristotle (*ἀπορίαι*). The next level of interpretation contains Philoponus’ critical interpretations, the corollaries. A corollary starts from an *ἀπορία*, but challenges Aristotle’s arguments. In this level of interpretation, Philoponus takes a position against Aristotle (or others) and provides an opposing argument. The corollaries complete the discussion of a passage, providing new insights within the exegesis. Finally, the digressions on place and the void complete the picture of Philoponus’ interpretative style in his commentary on the *Physics*. His style in the digressions differs from the reader’s expectations for the exegesis of the running commentary: the digressions are continuous texts, uninterrupted by lemmas, and Philoponus uses verbal forms showing his own contributions to the discussion of the problems.

The content and the structure of the commentary introduce some innovations to the commentary tradition (of course, Simplicius’ commentary on the *Physics* is a parallel

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81 For instance, see *in Phys.*, 587, 26-588, 27; 592, 29-32; 598, 3-30; 632, 4-8. However, an earlier sign of Philoponus’ own theory of place in the running commentary is this: “τις ἡ ἀποκλήρωσις ἐν ἕνι μὲν μέρει τοῦ κενοῦ ἐναι σῶμα, μὴ καὶ πανταχοῦ δὲ ἐναι, ἐὰν περ τὸ κενὸν τόπος ἑστιν ἑστερημένος σώματος,” *in Phys.*, 408, 7-9.
The corollaries and the digressions introduce a kind of dialectic between the commentator and the text. It is not—or, at least, it is not only—the dialectic between the authority (Aristotle) and the commentator (Philoponus). The corollaries and the digressions introduce a dialectic between the philosopher Aristotle and the philosopher Philoponus in a way that opens the ground for philosophical debates. It would not be excessive to say that Philoponus, in many cases, stands before Aristotle, equal to equal. This kind of dialectic reconfigures the relationship between authority and commentator. But, despite these innovations, Philoponus relies much on the commentary tradition, as I will argue in the next section.

The refutations found in the digressions on place and the void and in the corollary on projectiles (impetus theory), especially, introduce a different model of physics, a different image of nature; in this sense Philoponus stands shoulder to shoulder with Aristotle, as his equal. Philoponus contests Aristotle’s views on place and the void by proposing a new theory. The next question is: how far beyond the proper work of a commentator does Philoponus go?

1.7 The commentator and the truth

Christian Wildberg argues that:

‘[…] it seems certain that what essentially enabled Philoponus to operate both as a critic of Aristotelianism and as a constructive thinker in his own right was somehow tied up with new understanding of what one ought to do when one is reading and interpreting the philosophical texts of Plato or Aristotle’.

Wildberg’s statement perfectly fits Philoponus’ commentary on the Physics. There is a striking tendency to criticism and innovation. A common interpretative line, more or less established in both philosophical centres of late Platonism, Athens and Alexandria, was to present either a harmonized picture of Plato and Aristotle or to smooth over Aristotle’s false assumptions. Philoponus seems to distance himself from both these approaches of the late Platonic commentary tradition. He seems to have followed Ammonius’ Platonism but never to have tried to harmonize Plato and Aristotle. In parallel, Philoponus’ seems at some point in

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83 Wildberg 2008a.
his intellectual course to have felt unbound; he could therefore disagree in important respects with both the Aristotelian (Physics, De aeternitate mundi contra Aristotelem) and the Platonic (I mean the De aeternitate mundi contra Proclum) traditions.

It is reasonable to ask, in regard to the commentary on the Physics, how far Philoponus deviates from the standard work of a commentator in adding corollaries and digressions. This question is hard to answer because it involves systematic research on the history of the commentary tradition, which is not the task of this book. However, I would like to make some observations. To begin with, the appearance of corollaries and digressions within the comments is itself innovative as it strays from the standard practice of exegetical commentaries. If one adds to this the content of the corollaries (specifically the corollary introducing impetus theory) and of the two digressions, then one might think that Philoponus sets aside his identity as ‘the Aristotelian commentator’ and puts forward his original philosophical thought. However, I will argue that Philoponus’ innovative interventions are not incompatible with his status as a commentator. For this purpose, we must consider how the commentators conceived of their proper work.

Commentators usually copy, or just paraphrase, the ten prefixed preliminary issues (κεφάλαια) introducing the pupils to the Aristotelian philosophy. Philoponus notes three main aspects of commentator’s role in the preface of his commentary on the Categories. First, he should be a neutral judge. Second, he must clarify the thought of the philosopher (Aristotle). Third, the commentator can also introduce his own judgment. Being an unaffected judge (κριτὴς ἀπαθής) means, I take it, that the commentator has the duty to presenting the Aristotelian text neutrally. According to Philoponus, Aristotle’s authority should not be too influential. A certain kind of balance should be kept while commenting. Exaggerations due either to a good or a bad disposition towards Aristotle are unnecessary. Emotional exegesis of the text—hatred, or sympathy—could disorientate the student of philosophy.

However, a commentator, after he has clarified and interpreted Aristotle’s thought, can then put forward his own judgment. This judgment is a further level of approaching Aristotle’s text. It should not be assumed that commentators always did this. But Philoponus seems to rely very much on this aspect of the commentator’s tasks. The expression τὴν παρ’ ἑαυτοῦ ἐπιφέρειν κρίσιν can have various meanings: it signifies that the commentator expresses an opinion, a further argument to show more clearly what Aristotle meant, or a

84 Philoponus says: ‘He who explains to him [the hearer, or the pupil] ought neither, from benevolence, to attempt to exhibit what is badly stated and to accept it authoritatively, nor. from hatred, to take malignantly what is well stated, but to be an unaffected judge of what is stated; he ought, first, to make clear the thought of the ancient [Aristotle] and interpret his opinions, and thereafter set out his own judgment’, in Cat., 6, 30-35.
difference from other commentators. But it can also mean a critical comment, a personal view that is not exegetical, either against Aristotle or someone else.

How does Philoponus’ conception of a commentator’s work relate to that of his master Ammonius? I believe that Philoponus follows his teacher in the exposition of the preliminary issue (κεφάλαιον) ‘of what sort must be the commentator’. Ammonius Hermeiou presents the task of the commentator in an elaborate way. There is a clear verbal and conceptual similarity between Ammonius’ and Philoponus’ approach, as can been seen from their proems on Aristotle’s Categories. Ammonius, first of all, says that the commentator should be an intelligent man in accordance with his rationality. The commentator should also have at his disposal an excellent knowledge of what he is going to explain to his pupils. Furthermore—and this seems to be the main obligation of the commentator—he must both provide an exegesis of Aristotle’s thought and examine the truth of what is said. To examine the truth does not necessarily mean to criticize Aristotle, but we cannot exclude it. The examination of the truth seems to be close to the notion of «ἔλεγχος», in the sense that the «ἐξετάζειν» includes the meaning of scrutinizing and describes an attempt to prove the truth, or otherwise, of something. So, I believe, Ammonius’ position here is essentially the same as the idea found in Philoponus that the commentator uses his own judgment.

There are two further comparisons to make between Ammonius’ and Philoponus’ texts. First, Ammonius, as well as Philoponus, stresses the struggle to stay neutral. This seems to be one of the major worries of the commentators. Aristotle’s statements and the truth must be balanced; the commentator cannot accept whatever Aristotle states as if he were hired to defend Aristotle’s views. In other words, the commentator should not be too attached to Aristotle’s authority.

Second, the truth should guide the commentator. Ammonius strikingly says that the judge, i.e. the commentator, should struggle (βασανίζειν) in order to put the truth before Aristotle. The term «βασανίζειν» shows the anxiety of the commentator when, on the one hand, he has to deal with the authority of Aristotle and, on the other hand, he has to be in accordance with the criterion of the truth. It must have been extremely difficult for a loyal commentator to give truth more weight than Aristotle’s authority. Nevertheless, Ammonius

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85 ‘Tenth, it is necessary to investigate of what sort he should be who explains Aristotle’s writings. And we say that he should know excellently what he must explain, and that he should be a rational man; so that, on the one hand, he represents the thought of the philosopher and, on the other hand, he examines the truth of what is said; for he should neither act in any way as if he himself were hired, nor accept whatever may be said, nor pursue in any way the ruling views, explaining them as being true, if this is not the case; but each judge must strive to put the truth before Aristotle, if by chance it happens to be so. This is how the exegete ought to explain’, Ammonius, in Cat., 8, 11-19.
states that the commentator should deny Aristotle’s authority if this is necessary to re-establish the truth, even if this in a sense torments the commentator.

In my view, Philoponus does not exceed the commentator’s established task. To support this, I quote the following text taken from his commentary on the *Physics*:

‘It would be perhaps better first to go through the whole account on the void, and then take it up from the start examining in what way each of the arguments is true or false, without being ashamed, and without putting the assumptions of that man (e.g. Aristotle) before the truth’ *in Phys.*, 651, 1-4.

The text announces the digression on the void. Philoponus intends to re-examine Aristotle’s account of the void and see whether it is true or false. It is interesting to see that, for Philoponus, re-examining the truth of Aristotle’s arguments is a slightly embarrassing act. I suggest that the expression «μηδὲν αἰδεσθέντας», used by Philoponus, relates to the term «βασανίζειν» in Ammonius’ text. In particular, I claim that Philoponus contradicts the concept of the term «βασανίζειν» by maintaining that he will not be ashamed of criticizing Aristotle’s arguments. There is no reason to be afraid of Aristotle’s authority. Moreover, Philoponus does not intend to put Aristotle’s views before the truth. This last point transforms Ammonius’ words:


In both texts, the truth is more important than Aristotle’s own views. The difference is that in Ammonius’ text this prioritisation causes anxiety and is considered a kind of torment, whereas Philoponus frankly states that putting Aristotle’s views before the truth would be wrong. Even though Aristotle is the authority, the commentator should not feel ashamed at all, when he comes to re-examine the truth of Aristotle’s account; for truth is what philosophers seek.\(^\text{86}\)

To conclude, we have seen that Philoponus stays mainly loyal to the role of commentator. The extent to which he dares openly to challenge Aristotle’s authority goes

\(^{86}\) The same worry about obtaining the truth is differently spelled out in the digression on place. Again, the truth and the real nature of the things play a central role for Philoponus (*in Phys.*, 578, 28-32): ‘But as I said from the beginning and say now, let them either show that there is no such extension and destroy our demonstrations, or, so long as the latter still hold up, we shall not do away with the nature of the facts just because some people thought to argue in this way’, trans. Furley 1991, p. 41, modified.
beyond standard practice; he does not follow the traditional approach of the commentators and correct Aristotle quietly. But, in doing this, Philoponus is not exceeding or adding to the accepted idea ‘of what sort must the commentator be’. As we saw from examining the texts, Philoponus adds nothing to that. He does, however, take seriously the obligation to examine the truth of Aristotle’s words, whereas his master, as far as we can tell, seems to have avoided direct criticism.\(^87\) When Philoponus says that there is nothing to be ashamed of in criticizing Aristotle, he knows that this is based on the previously established idea that a commentator ought to put forward his own opinion.

Philoponus stands at the edge of the commentary tradition, poised between following its guidelines and going beyond them. His criticisms do not aim simply at undermining Aristotle’s authority, but rather at revealing the truth. I read the criticisms and attacks in the corollaries and the digressions of the commentary on the *Physics* as a systematic and elaborated interpretation of commentator’s work.

1.8. Introduction to the digressions

Philoponus divides the fourth chapter of *Physics IV* into three lectures. From the last lines of the second lecture,\(^88\) we learn that it discussed the refutations of the view that place is an extension (*τὸ διάστημα*), as they arose from the exegetical tradition on Aristotle’s words.\(^89\) Philoponus also announces that he will examine all the refutations added to the discussion by

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\(^87\) I would like to make a few further points concerning the relationship between master, Ammonius, and disciple, Philoponus. An exceptional passage from the digression on place gives an idea of a discussion between Ammonius and Philoponus, connected to Philoponus’ criticisms of the Aristotelian theory of place (*in Phys.*, 583, 13-585, 4). I will not go into the details of the disagreement between Ammonius and Philoponus, but rather focus on the additional things this discussion can tell us about Philoponus’ attitude in the commentary on the *Physics*. The digression on place is not just a critical comment, aimed at completing Aristotle’s account of place; rather it is a radical criticism, an objection against several Aristotelian arguments, which goes beyond common exegetical practice. Now, the fact that Philoponus could discuss these criticisms either with Ammonius in private or within a course of the school, i.e., in front of an audience, shows two things: first, it shows that in the school of Alexandria a student had the freedom of speech to raise questions, besides the clarification of Aristotle’s words; second, it shows that it was permitted for a student to make an «ἀντιλογία» against Aristotle and for the master, in turn, to make an «ἀπολογία» in favor of Aristotle’s theory. I believe that this discussion shows us the spirit of Philoponus and of Ammonius. Phrases referring to Ammonius such as «πλασματώδης δείκνυται ἡ τοῦ φιλοσόφου ἀπολογία» show Philoponus’ freedom to criticize even his master (*in Phys.*, 584, 3-4). Finally, Philoponus presents his discussion with the master of the school in past tense (the participle «ἡμῶν ἀντιλεγόντων» and the imperfect tense «ἔλεγεν» (*in Phys.*, 583, 13-14) are clear evidence of this); could this be a sign that Philoponus expressed his doubts earlier in Ammonius’ lectures and then wrote his own commentary on the *Physics*, incorporating his theory on place? I believe that this is plausible.

\(^88\) We read (*in Phys.*, 552, 10-13): ‘These are the attempts culled from the exegetical tradition devoted to the Aristotelian text that are intended to establish that place is not an extension. The external arguments that the commentators have added, and whatever the proponents of the view that place is an extension could say, we will expound after having gone through the text’, trans. Algra—Ophuijsen 2012, p. 67.

\(^89\) See *in Phys.*, 546, 25-552, 13.
the commentators and the arguments of those who support the thesis that place is extension, after he has gone through the λέξις.\textsuperscript{90} The passage is extremely important for our understanding of the position of the digression on place within the running commentary.

First, this text is evidence of the commentator’s methodology in recapitulating for his students what has been explained so far. In addition, Philoponus clearly announces in the text what his next step will be. He says that later on he will move on to something different, an exposé of the refutations expressed by the commentators. Philoponus’ remark that he will examine what the proponents of the extension-theory could have said is crucial for the suggested interpretation of the digression on place since it shows that Philoponus shaped his own views concerning place while he was working on the exegetical comments.

Indeed, after the λέξις section (in Phys., 552, 14-557, 7) of the second lecture on IV, 4, Philoponus interrupts the exegesis with quite a large text (the digression on place covers 28 pages in the CAG edition), placed between the second and the third lecture on IV, 4. Philoponus leaves aside the comments on the text and returns to some Aristotelian arguments presented in the previous θεωρία (in Phys, 546, 25-552, 13), adding his own views to the previous discussion (τῷ λόγῳ). The digression on place examines the cogency of Aristotle’s arguments, which posit that place cannot be a kind of three-dimensional extension (τὸ διάστημα τριχῇ διαστατόν).\textsuperscript{91}

The digression on the void is announced and starts in a similar way to the digression on place.\textsuperscript{92} The digression on the void (in Phys., 675, 12-695, 8) is placed almost at the end of the running commentary on the Physics IV, 9, the last chapter in which Aristotle discusses the concept of void. More precisely, the digression on the void comes in between Philoponus’ two lectures on the Physics, IV, 9. The announcement describes, as in the case of the

\textsuperscript{90} I take it that the expression «τὸ ῥητὸν» (in Phys., 552, 13) refers to the λέξις section of the θεωρία that immediately follows (in Phys., 552, 14-557, 7); the reason for this choice is that the digression on place starts exactly after the lexis of the second lecture on the Physics IV, 4. I understand Algra’s translation (‘the text’) as pointing out the same thing: first we will finish the exegesis of the text (i.e., the short comments found in the λέξις section) and then expound the different opinions.

\textsuperscript{91} The digression on place starts with the following words (in Phys., 557, 8-10): ‘It is time, then, that our own contributions be added to the discussion, and, in the meantime, that we examine if there is any cogency in the Aristotelian arguments showing that it is impossible for place to be a three-dimensional extension’.

\textsuperscript{92} Philoponus announces the digression several pages before it appears, at the end of the third lecture (among four) on the Physics IV, 8 (in Phys., 650, 27-651, 4): ‘For Aristotle, who constructs the argument that if the void existed, there could not possibly be motion through it, the account deriving from the inequality of the moving bodies, which occurs regarding motion through a medium, goes on up to here; for the one who aims at absolutely attaining the truth, let him gather as much power as possible lest he perchance fail to reach the aim because of the intensity and the difficulty of the arguments. It would perhaps be better first to go through the whole account on the void and then to take it up again from the start, examining in what way each of the arguments is true or false, without being ashamed, and without putting the assumptions of that man [Aristotle] before the truth’.
announcement of the digression on place, Philoponus’ methodology in examining Aristotle’s arguments on the void. Philoponus points out that some problematic issues arise from the Aristotelian doctrine against the existence of the void. However, he first wants to go through the whole account on the void and then to examine the arguments. Cross-examining Aristotle’s arguments is, again, an attempt to attain the truth. Philoponus will scrutinize the cogency of the Aristotelian arguments and then their truth value. As will be shown later, Philoponus’ main difficulty with Aristotle’s account is to accept the view that, even if void existed, motion of bodies would be impossible.93

Undoubtedly, there is a structural connection between the running commentary and the digressions. The difference between παρεκβάσεις and θεωρίαι is that the latter have an exegetical purpose, whereas the former do not. That is the main reason I argue that digressions, in a sense, stand ‘outside’ the running commentary and exceed the θεωρία-λέξις form (the lectures proper). Nonetheless, the digressions are organic parts of the commentary on the Physics. The digressions cannot be detached from the running commentary: all the arguments discussed in the digressions are connected to the lectures in the exegetical part of the commentary. In some cases, as we shall see, Philoponus’ argument in the digressions relies on his interpretation of Aristotle’s text as expressed in the main body of the exegesis. Without paying attention to the discussion of Aristotle’s arguments in the lectures, the reader of the digressions will be unable to comprehend the strategies behind some of Philoponus’ criticisms. Digressions and running commentary share the same ground—the exegesis of Aristotle’s Physics—though they differ in that they serve distinct purposes.94

Philoponus regards his digressions as additional thoughts, related to the discussion of the Aristotelian arguments on place and the void.95 Both digressions should therefore be read along with the corresponding exegesis of the arguments in the running commentary, not as separate, autonomous texts. This view allows us to elucidate Philoponus’ steps entirely before introducing his criticisms and to give a better explanation of his criticisms of the Aristotelian tradition on the concept of place.

93 Philoponus says at the beginning of the digression on the void: ‘Up to this point the Aristotelian account of the void is complete, but we must anew take up the account, examining each of the arguments. [...] My objection is to Aristotle’s arguments which tried to show that if void existed, nothing would move through it, and that, even if there is no void in any way separated from bodies, instead there is the void that is filled, which is also the place of bodies, as we proved in the previous arguments’, in Phys., 675, 12-14; 675, 26-676, 1.
94 The digressions on place and void play the role of completing the study of physics: they are considered to be accounts of place and void that are closer to the nature of place than Aristotle’s account. Therefore, we cannot separate them from the body of the commentary on the Physics. The innovative character of these texts forced Philoponus to incorporate them as deviations from the θεωρία-λέξις form.
Because of their content, the digressions are quite dense texts: the arguments succeed each other, both systematically attacking (mainly, but not only) the Aristotelian account of place and expressing Philoponus’ own account of place. Philoponus picks up specific arguments which, according to his view, lack cogency and whose truth is disputable. Thus both digressions are specialized texts, dealing with the problems and difficulties which had arisen within the Aristotelian tradition on place and the void.

1.9 A note on Philoponus’ opponents in the digressions

Before examining the structure of the digressions on place and the void, I would like to draw attention to a crucial point regarding the criticisms that Philoponus expounds in the digressions. The digressions are traditionally interpreted as an attack on Aristotle’s account of place and the void. Indeed, Aristotle is Philoponus’ principal target. But, it seems, Philoponus does not successfully refute the Aristotelian account. Some of Philoponus’ arguments against Aristotle do not correspond to Aristotle’s views, giving the impression that Philoponus is not directly answering Aristotle’s arguments. Reading Philoponus’ digression on place, we take for granted that the problems he discusses have their background in Aristotle’s *Physics*, but, I argue, some of the thoughts that Philoponus attacks may be Aristotelian in origin but not Aristotle’s own thoughts.

While I was attempting to discover against whom Philoponus is arguing, I realized that in both digressions Philoponus also has in mind Themistius’ *In Physica Paraphrasis* (*CAG*, V/2, 1900). The role that Themistius played in the composition of Philoponus’ commentary on the *Physics* is easily recognized, for the paraphrase was the handbook Philoponus used when he was commenting on Aristotle’s *Physics*. I realized that it is often Themistius’ interpretation of Aristotle’s account of place and void that Philoponus tackles. Philoponus quotes Themistius by name many times in his commentary. There are, however, as will be shown in the following chapters, many cases in which Philoponus does not refer to Themistius by name but still appears to have him in mind. So, generally speaking, the discussion in the digressions often relates to Themistius’ interpretation of Aristotle.

Themistius’ paraphrase of the *Physics* contains, according to Philoponus, many problematic assumptions. Philoponus believes that the Aristotelian doctrines on place and the

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96 See above note 00.
97 Golitis 2008, p. 65.
98 According to the Index Nominum of Vitelli’s edition in the *CAG* (XVII, p. 992), Themistius’ name appears in the commentary 16 times.
void lead Themistius’ interpretations to deal with the same problems as Aristotle. Philoponus disproves Themistius’ interpretation, partly because he thinks that Aristotle left room for such fallacies but also because he thinks Themistius himself is responsible for further problematic assumptions. But this is not the whole picture regarding Philoponus’ targets in the digressions.

Which sources Philoponus used, and attacked, is not resolved. I attempt to clarify, throughout my study, when Philoponus is attacking Aristotle and when he is attacking either Themistius or some other, unnamed source, for instance, the Stoics, early Atomists, or Epicureans I maintain that Philoponus also criticizes the Stoics and the Atomists, both because Themistius is unfairly opposed to the Stoic and the Epicurean view of place (place is for all of them a kind of bodiless extension) and because Philoponus himself differentiates his view from their view. Occasionally, it is possible to identify the theories lurking behind Philoponus’ arguments fairly accurately, but in other cases we can only speculate or simply remain silent. It is certainly the case that Philoponus’ criticisms attack other theories of place than Aristotle’s, as it is beyond doubt that they attack the Peripatetic tradition endorsing Aristotle’s views.

Philoponus uses Alexander’s of Aphrodisias commentary on the Physics. We cannot draw any secure conclusion from this, apart from the fact that Philoponus knew Alexander’s, now lost, commentary—we know this because Philoponus names him when referring to some of his interpretations.99 Philoponus certainly used Alexander’s exegesis extensively. However, Alexander’s presence in the digressions remains a mystery. But it is reasonable to assume that some of the criticisms in the digressions on place and the void may have been against Alexander. Philoponus could easily rely on Alexander’s exegesis and criticize his views, as he often does with Themistius and others. Alexander was the orthodox interpreter of Aristotle’s words in Late Antiquity. Themistius relies heavily on Alexander’s exegesis.100 Thus Philoponus’ criticisms attack both Themistius and Alexander of Aphrodisias. I shall attempt to reveal Philoponus’ references to his enemies and friends, whose identities I have discussed here, in both digressions.

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99 Vitelli’s Index Nominum testifies that the name of Alexander of Aphrodisias appears 10 times in Philoponus’ commentary (in Phys., 81, 25; 349, 5; 356, 8; 492, 3; 528, 12; 738, 24; 745, 20; 756, 9; 854, 14; 891, 1). Rashed (2011) tries to follow Philoponus’ readings of Alexander in his reconstruction of Alexander’s lost commentary on the Physics IV, 1-9.

100 In his paraphrase of the Physics IV, 1-9, especially, apart from one reference by name (in Phys. Paraphr., 104, 20), we can identify, according to the apparatus criticus of Schenkl’s edition (CAG), the following references based on Simplicius’ quotations: in Phys. Paraphr., 107, 13; 106, 26; 108, 4; 112, 18; 117, 3-4; 118, 11; 119, 22; 130, 9; 133, 10; 135, 25; 140, 1.
1.10 The argument of the digressions

Now I will divide the digressions into parts and provide an overall preview of their subject-matter, starting from the digression on place. As both digressions are long sequences of arguments, before moving on to the analysis of the arguments, I will sketch out their structure. The digression on place can be divided into five parts:

1. Against Aristotle and Themistius’ view that place cannot be a (three-dimensional) extension (in Phys., 557, 10-563, 25).

2. Against Aristotle and Themistius’ view that place is the limit of the surrounding body (in Phys., 563, 26-567, 28).

3. Defending the thesis that place is a three-dimensional extension, different from the bodies that come to be in it (in Phys., 567, 29-579, 18).

4. Place as a three-dimensional extension neither has any power nor is infinite (in Phys., 579, 19-583, 12).


This division improves, I think, Furley’s rather simplified division, in which he divides the digression on place into three parts (the last part of Furley’s division corresponds to parts 3, 4 and 5 of mine).¹⁰¹ I find Furley’s division inaccurate, since Philoponus’ text contains clear points suggesting the division of the digression into five parts. Golitsis’ division, which divides the digression into four parts, is more defensible.¹⁰² My only difference with Golitsis’ division is that I want to split the third part of his division in two (parts 3 and 4 of the divisions I propose). My reason for this differentiation is the clear change of subject in the passage in Phys., 579, 19-583, 12 (part 4 above). This section is not additional argument on the difference of place from bodies (part 3); Philoponus clearly changes the subject to argue against the infinity of place and against the view that it has a power.

Although the third and the fourth part of the digression on place are supposed to be the main sections in which Philoponus introduces his account of what place is, the two first

¹⁰² Golitsis 2008, p. 175.
parts of the digression, in a sense, provide us a positive definition of place as well: the criticisms either of Aristotle or of Themistius and others also give Philoponus space to argue for his alternative theory of place. Apart from the fifth part, where Philoponus presents a discussion with his teacher Ammonius Hermeiou, the remaining parts of the digression have a double character: they criticize (mainly) Aristotle and the Peripatetic tradition, and they establish a (new) definition of place. Philoponus himself says that all his criticisms fall into the framework of the truth about the definition of place and aim to re-establish the real picture of nature.103

A brief overview of the contents of each part of the digression will be helpful before examining Philoponus’ text in detail. Philoponus (in part 1 of the digression) focuses his attack on Aristotle’s denial of the thesis that place can be an extension in between the limits because of a subsequent infinity of places (Physics, 211b7-8). Philoponus’ criticism is systematic: he constructs different arguments to refute an Aristotelian or a Themistian thesis. In some cases, he even applies to the Aristotelian doctrine the problems that Aristotle and Themistius ascribe to the proponents of the extension-view. Alternatively, he uses Aristotle in order to reject Themistius’ interpretations. Philoponus claims that place as extension must be three-dimensional, bodiless, immaterial, and unaffected in any sense; place cannot divide the body that comes to be in it nor is it divided by body. Philoponus goes on to repudiate the Aristotelian definition of place as the limit of the surrounding body (part 2). Place as three-dimensional cannot be a surface—i.e., just the limit of the surrounding body. Philoponus attacks the Aristotelian definition of place with five arguments, showing how the definition militates against crucial considerations about place, as, for instance, place’s equality to bodies and place’s immobility.

In the third part of the digression, Philoponus is interested in showing that the local three-dimensional extension should be conceived of as an extension different (ἕτερον τι) from the bodies that come to be in it. Philoponus quite often distinguishes between place occupied by bodies and place being different from bodies. He insists that we can think of place as an absolute three-dimensional extension, independent of bodies. In the first two parts of the digression, this kind of independence was expressed: (a) in terms of a body that comes to be into something else, namely a three-dimensional extension, a place; (b) in terms of bodiless extensions which can apply to each other, not necessarily linked with bodies; (c) in terms of a place being deprived of any body, being empty. In the third part, Philoponus argues in favor

103 See in Phys., 578, 11-14; 30-31; 581, 8; 650, 30-651, 1; 687, 9-29.
of the idea that place is an extension different in any way from the bodies that come to be in it. He uses five arguments to prove this differentiation: (a) the replacement of bodies; (b) the equality between place as measure and the body in it measured by place; (c) the ‘force’ of the void (ἡ βία τοῦ κενοῦ); (d) that the bodies are touching each other; (e) the thought experiment of the universe that is empty of bodies.

Finally, Philoponus claims (part 4) that, because of the equality between place and the body in it, place cannot be an infinite extension. Place relates to the order of nature, though it is not the object of desire which forces bodies to be in their proper place; thus it has no power.

Let us turn now to the digression on the void (in Phys., 675, 12-695, 8). The digression on the void may reasonably be divided into six parts:

1. Introduction: setting up the criticism (in Phys., 675, 12-676, 3).
2. Against Aristotle’s view that the causes of unequal motions confute void, in three arguments (in Phys., 676, 4-686, 29): 104
3. Against the Aristotelian assumption that the void does not fill the need of bodies for a place (in Phys., 686, 30-689, 25).
4. That motion is possible through the void, even if the void were separated from and deprived of bodies (in Phys., 689, 26-693, 27). Three examples:
   i. Circular motion (in Phys., 690, 3-691, 8).
5. That the existence of the void does not prevent motion from occurring in time (in Phys., 693, 28-694, 27).
6. For what reason do bodies of different shape move differently in void? (in Phys., 694, 28-695, 8).

Once again, Furley roughly divides the digression on the void into two parts. 105 The first part of his division includes the first three parts of my proposed division. The second

104 The second part starts with a recapitulation of Aristotle’s arguments (in Phys., 676, 4-677, 8). I do not read this section as a different part of the digression.
part of his division includes parts 4-6 above. It seems that Furley’s intention in both
digressions was to give a very general guide to their structure, so Furley just points out where
Philoponus defends his own theory and where he criticizes Aristotle. Golitsis divides the
digression into three parts, the third being subdivided into two. The second part of Golitsis’
division corresponds to the second and third part of my division, and his third part
corresponds to the last three parts of the division I propose. According to my reading of the
digression on the void, Philoponus’ text says more about the void than Golitsis division
grants.

With the digression on the void Philoponus wants to reconsider the stringency of
some arguments introduced in the Physics IV, 6-9. Philoponus says that he will not return to
all the arguments concerning the void. He aims to prove that Aristotle wrongly assumes the
impossibility of motion through the void, if it existed, and the impossibility of a void
extension (place) filled by bodies, although it would never occur without body. The
examination starts from the causes of unequal motions (part 2 of the digression). Different
bodies moving through the same medium, i.e., void, will have unequal motions because their
heaviness (ἡ βαρύτης) produces different impulses (ροπαὶ). If the void were the medium
through which different bodies move, then the void would not make the bodies move at equal
speeds.

Philoponus points out that in the case of equal and similar bodies that move through
different mediums, we should consider that the motion through void occurs in time and that
the ratio of the times of the moving things does not follow the ratio of their weights. He
claims that if we drop two bodies of different bulk from the same height at the same time,
they will reach the ground in equal times or, if there is a difference, it would almost be not
perceptible by senses. Philoponus agrees with the Aristotelian idea that the void cannot have
the same ratio to the full (κενὸν-πλῆρος), but he gives a different reason for it.

The commentator, once again, denies Aristotle’s argument that there could be many
extensions at the same spot and that there would be an infinite regress (part 3). The
extension-theory proposed by Philoponus distinguishes between bodily and non-bodily
extension, therefore it escapes from many problems that Aristotle raised against the Atomists
in the Physics (213a12ff.). Philoponus reverses the Aristotelian statement that there would
not be motion if void existed, by claiming that locomotion would be impossible without the
existence of an empty extension.

According to Philoponus’ theory, even if the separate void exists, nothing would prevent locomotion from happening. Locomotion through a separate void can happen, Philoponus argues, in time (part 4). To reinforce his thesis Philoponus introduces three examples: circular motion (the motion of the fixed sphere), motions of choice (a man walking from Athens to Thebes), and forced motions or motions contrary to nature (one who throws a rock, or an archer). In the last two parts of the digression, Philoponus defends the thesis that without the void it is impossible for motion to occur, based on the equality between place and what is in place. In addition, he explains the reason that bodies of different shapes have different motions, as, for instance, a spherical and a flat body might have, when they move through the void.

In the following study, I concentrate on some of the most decisive aspects of Philoponus’ theory of place and void. Generally, I follow the structure of the digressions, since they have a coherence which should not be broken up; sometimes I move back and forth within the digressions and the running commentary in order to complete and explain arguments in the light of the running commentary. In Chapters 2 and 3, I work on the digression on place, generally following its structure. I focus on the kind of extensionality that Philoponus claims is the place of bodies and how this extensionality differs from the extension that Aristotle refutes in the *Physics*. In Chapter 4, I pick up some of the issues raised in the digression on the void, as Philoponus’ conception of voided place discusses the motion of natural bodies through the void. The interpretative line according to which these chapters are constructed has two main interests: first, to show that Philoponus introduces a specific concept of extensionality; second, to reveal Philoponus’ two instances of τόπος: place in its own right (conceptual aspect) and place of bodies (sensible aspect), which Philoponus introduces. Finally, in Chapter 5, I examine Philoponus’ objections to Aristotle’s definition of place, as presented in the digression on place.
CHAPTER 2 Philoponus Defending Place as Extension

Philoponus’ criticisms of Aristotle and the Peripatetic tradition, as well as the theory that he himself proposes, are formed by an interest in reconciling our assumptions to nature’s reality. Philoponus opts for a definition of place as extension (τὸ τοπικὸν διάστημα). Is it possible, however, to theorize a kind of extension compatible with the nature of bodies? This is the starting question of Philoponus’ theory of place. Philoponus proposes a definition of place that falls under the general category of theories of place called ‘extension-theories’, but his theory differs in some fundamental aspects from other extension-theories of antiquity (i.e., early Atomists, Epicureans, and Stoics). Apart from criticizing his obvious opponents, namely Aristotle, Themistius, and perhaps Alexander of Aphrodisias, Philoponus criticizes or leaves aside all the unsatisfactory elements of other extension-theories that might produce further complications.

This chapter concentrates on Philoponus’ reaction to Aristotle’s rejection of the extensionality of place, as followed by Themistius. I shall first present Aristotle’s objections to the view that place is an extension (διάστημα); next, I will examine Themistius’ and Philoponus’ interpretations of the Aristotelian objections. This chapter also focuses Philoponus’ arguments against Aristotle’s objections. Philoponus takes up the task of demonstrating the logical weaknesses of the charges which Aristotle makes against the proponents of the extension-theory of place. It is noteworthy that Philoponus does not support the views of Aristotle’s opponents (especially the Atomists). He examines the cogency and the truth of Aristotle’s arguments in order to show that there is a kind of extension which avoids the problems Aristotle ascribes to it. The central interpretative line I endorse is that

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107 Generally, I do not wish to provide a systematic interpretation of Aristotle’s text, but rather to provide a précis of it.

108 The view that it is Leukippus and Democritus whose theories Aristotle criticizes with his argument against extension-theory (Physics, 211b14ff.) derives from the fact that Aristotle explicitly says that the proponents of the void represent it as a place and a kind of vessel (Phys., 213a15-16); I do not think that there is anyone else Aristotle could mean. Simplicius testifies that Aristotle says that Democritus also describes place as ‘void’, ‘nothing’, and ‘infinite’ (in De caelo, 295, 1-5). Mendell (1987, pp. 213–219; 226) argues that Aristotle may have been rejecting—apart from the Atomists—a (Platonic?) theory, and that this may have led him to his statements in the Categories. For further reading on the subject, see Algra (1995), pp. 123-153.
Philoponus in attacking Aristotle and Themistius at the same time defends a kind of extension which is not disputable in the sense Aristotle and Themistius thought it to be.

2.1 Aristotle’s rejection of place as extension

Aristotle in *Physics* IV, 1-5 examines the concept of τόπος. The principal question of these chapters is: ‘what is place?’ Aristotle considers the examination of place to be one of the major tasks of the physicist (*Phys.*, 208a27-29). He takes four possible answers into account: place can be (a) form, (b) matter, (c) the extension between the limits, and (d) the limit of the surrounding body. Aristotle refutes the first three answers and defends the fourth by defining place as the limit of the surrounding body. Aristotle’s definition of place (212a5-6; 212a20-21) implies that place is the first and immobile limit of the surrounding body (at which it is in contact with the surrounded body). Here, I am interested in Aristotle’s refutation of the position that there cannot be an extension that is the place of bodies which is over and above the bodies that come to be in it.[108]

The most useful way to approach Aristotle’s argument is to start from the lines 211b14-19 of the *Physics*.[111] To begin with, it is crucial to note that the case Aristotle constantly has in mind in the whole passage (*Physics*, 211b14-29) is a vessel containing water or air. Aristotle argues that some might think that there is an extension in between (the limits of) the vessel and the water, something over and above the body that changes place (i.e., the vessel or the water), because what is contained and separate (for example, water) often changes while the container (vessel) remains the same—by ‘change’ I understand an increase or decrease of the body’s quantity or the replacement of bodies. For example, when water is poured from the vessel, some people think that a separate extension exists between the two.[112] But, according to Aristotle, this extension does not exist; what happens is that whichever body of those that change places and are naturally capable of being in contact with other bodies falls into the container.[113] In other words, it is impossible that a separate extension exists in between the water and the vessel when the water changes place, for

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[108] Aristotle’s reply to this question comes in *Phys.*, 211b5-212a7.
[109] In Aristotle’s words: «παρὰ τὸ τοῦ ἐγγείγνομένου σώματος μέγεθος», *Phys.*, 211b9; and «ὡς ὁν τι παρὰ τὸ σῶμα τὸ μεθιστάμενον», *Phys.*, 211b17.
[110] I quote: «διὰ δὲ τὸ μεταβάλλειν πολλάκις μένοντος τοῦ περιέχοντος τὸ περιεχόμενον καὶ διηρημένον, οἷον ἐξ ἀγγείου ὕδωρ, τὸ μεταξὺ εἶναι τί δοκεῖ διϊστήμα, ὡς ὁν τι παρὰ τὸ σῶμα τὸ μεθιστάμενον. τὸ δ’ οὐκ ἔστιν, ἀλλὰ τὸ τυχὸν ἐμπίπτει σῶμα τῶν μεθισταμένων καὶ ἀπεστάθη περικότων». Simplicius takes it that Aristotle has in mind the case of a vessel containing water which one tips to and fro («ἐν τῷ κλούσισμῷ», *in Phys.*, 575, 1-2).
another body will occupy the place occupied by the water. Aristotle’s refutation is based on an argument (Physics, 211b14-29) which was already characterized by Philoponus as quite obscure and difficult, since the text may be partially corrupt. Aristotle objects to the thesis that place is an extension by arguing as follows (Phys., 211b 19-29):

«εἰ δ’ ἦν τι [τὸ] διάστημα <καθ’ αὐ>τὸ περικός <ἐλιναι> καὶ μένον, ἐν τῷ αὐτῷ ἀπειροὶ ἂν ἦσαν τόποι (μεθισματέμνου γὰρ τοῦ ὦδατος καὶ τοῦ ἀέρος ταύτο ποιήσει τὰ μόρια πάντα ἐν τῷ ὄλω ὀπερ ἅπαν τὸ ὕδωρ ἐν τῷ ἄγγειῳ)· ἀμα δέ καὶ ὁ τόπος ἔσται μεταβάλλων· ὡστ’ ἐσται τοῦ τόπου τ’ ἄλλος τόπος, καὶ πολλοὶ τόποι ἀμα ἔσονται. οὔκ ἐστι δὲ ἄλλος ὁ τόπος τοῦ μορίου, ἐν ὃ κινεῖται, ἤταν ὄλον τὸ ἄγγειον μεθιστεῖται, ἄλλ᾽ ἂν τόπος· ἐν ὃ γὰρ ἔστιν, ἀντιμεθιστεῖται ὁ ἄμπερ καὶ τὸ ὕδωρ ἦ τα μόρια τοῦ ὦδατος, ἄλλ᾽ ὢκ ἐν ὃ γίγνονται τόπῳ, ὁς κέρος ἐστι τοῦ τόπου δὲ ἐστι τόπος ὄλου τοῦ οὐρανοῦ».

‘But if there were some extension which was natural and stayed still, there would be infinite places at the same spot (for as the water and air change position, all the parts will do the same thing in the whole, as the whole of water in the vessel); and at the same time the place will be changing; therefore there will both be some other place of the place and many places will be at the same spot. But the place of the part in which it moves, whenever the whole vessel moves, is not some other, but the same; for air and water or the parts of the water replace each other in the thing in which they are, but not in the place in which they come to be, which is part of the place that is the place of the whole universe.’

Aristotle believes that if there were a natural extension that stayed still, some serious complications would occur. Let us suppose that water goes out of the vessel and that the water is replaced by air. Just as all of the water leaves the vessel, so each part of the water also leaves the vessel, replaced by each part of the air coming into the vessel, as the water is leaving. According to Aristotle, if this is true and this extension exists over and above the body which comes to be in the vessel, then there would be infinite places at the same spot. Those who believe that there is an independent extension are confused because, on the one


115 The text quoted is taken from Ross’ edition (Oxford, 1950). I do not translate the «<καθ’ αὐ>τὸ»; instead, I read the article «τὸ» (Phys., 211b20). I read the «<ἐλιναι>» although I am not convinced as to whether it should be in the text or not. I ignore the [τὸ] in line 211b19. See Ross’ (1936) comprehension of the passage, pp. 53-58; 375-376; 572-574.

hand, bodies are naturally capable of moving and being in contact and, on the other hand, there is something remaining when bodies exchange positions in between the vessel and the water or air; the contrast is between a natural extension that stays still and moving bodies. The consequence of producing an infinity of places at the same spot (Phys., 211b19-21) appears to be obscure. Aristotle says nothing about that kind of infinity and he does not explain the reason for the occurrence of the infinity.

The parenthesis in lines 211b21-23 may be a hint that helps to explain the term ‘infinite’. All the parts of water change position with the parts of air as the whole volume of water goes out of the vessel and the air replaces it. So, we could create an infinite number of parts of water or air, occupying their own extensions, since bodies are infinitely divisible. A further puzzling fact about Aristotle’s argument is the meaning of the «ἐν τῷ αὐτῷ» (Phys., 211b20). Does it mean ‘at the same spot’? Does it mean the vessel? For it is one thing to say that there will be infinite places at the same spot, and another thing to say that there will be infinite places in the same place, i.e., in the vessel. I prefer the first option, although I believe that, for Aristotle's argument, it makes no difference which of the two is correct, since the problem is the infinity of places. Moreover, in the text as it came down to us, Aristotle seems to state that place will change at the same time, so that there will both be another place of the place and many places will be at the same spot (Phys., 211b23-25). It is hard to see how this idea relates to the previous concept of infinite places. An initial point is that Aristotle refers to many places this time, not to infinite places. Once again, the case Aristotle has in mind is unclear. One could ask, for example, why would there be many places at the same spot because of an independent extension.

Although ancient commentators and modern scholars have suggested various interpretations, I still believe that the answer is a matter of guesswork. So, at the moment, I will just state the obvious, based on the vessel example. Place will change either when the vessel stays still and the water moves, changing position with air, or when the whole vessel moves along with the contained water. That something must move in order to have a change

117 Of course, this is not the only interpretation of Aristotle’s argument. As we shall see, Themistius seems to understand infinity in the sense that we can infinitely divide bodies (and therefore place too). According to Simplicius, the infinity of places derives from the infinity of magnitudes and their motions (in Phys., 575, 21-26). Morison (2002, pp. 124-125) argues that 'since the motions of the water as it leaves the vessel and of the air as it replaces the water are infinitely divisible, there will be an infinity of overlapping or coincident places', emphasizing the infinite divisibility of the motions of bodies.

118 Of the ancient commentators, Themistius, Philoponus, and Simplicius should be mentioned (see Simplicius, in Phys., 574, 19-578, 13). Unfortunately, we do not possess Alexander’s of Aphrodisias full exegesis, but only fragments of it (see Rashed’s 2012 edition of the fragments). Of the modern scholars dealing with the text, we should mention King (1950), Mendell (1987), Lang (1998), Morison (2002), and Bostock (2006).
of place derives from the sentence that clearly refers to the case where the whole vessel changes place: «ὅταν ὅλον τὸ ἀγγέλον μεθίστηται», (Phys., 211b26). It seems that the argument implies that when the vessel moves—i.e., when the place changes and the independent extension remains still—then the very same extension, i.e. place, would have another place: it comes to be in another extension, another place. Then we can assume that there can be places of places at the same spot, i.e., extensions that come to be in different extensions. This is the main body of Aristotle’s objection(s) to the thesis that place can be an extension in between limits, over and above bodies.

To reject the result of infinite or many places at the same spot, Aristotle points out that when the whole vessel changes place, the place in which the part of water moves is not different, but remains the same. For air and water, or the parts of water, change places in the place they are in, namely the vessel, but not in the place in which they come to be, which is part of the place that is the place of the whole universe (Physics, 211b25-29). In this case, there cannot be a change of place in the sense that the vessel, at any rate, happens to be the place of the water or the air. Hence, we only have one body at a time in the vessel, not many, and accordingly we have only one place, neither many nor infinite.

Anyone reading Aristotle’s Physics IV, 211b14-29 cannot ignore two things: first, that we cannot be entirely certain what Aristotle really meant; second, that his arguments raise many objections. The issue becomes more and more complicated because of the different possible ways of interpreting these lines of the Physics and the possible objections to these interpretations. Philoponus disagrees with Aristotle regarding whether extension introduces an infinite regress of places, and he takes up several positions put forward in the Physics, doubting their validity. But let us first illuminate Themistius’ and Philoponus’ interpretations of Aristotle’s objections.

2.2 Themistius’ exegesis of Aristotle’s argument
Themistius, in his paraphrase of the Physics, devotes a long section to discussing the view that τόπος is a kind of diastēma (in Phys. paraphr., 113, 7-119, 2). He ascribes the δόξα first of all to those whom Aristotle himself had in mind, that is to say to those claiming the existence of the void, namely Democritus and Leukippus. Themistius also refers to the circle of Chrysippus and to Epicurus, and, further, he notes that some people falsely attributed this doctrine even to Plato. Moreover, Themistius attacks Galen’s approach to some kind of
extension (while openly defending Aristotle’s definition that place is the limit of the surrounding body).\textsuperscript{119}

Themistius, before providing an explanation of Aristotle’s text in \textit{Physics} 211b19-29, attempts to compare the concepts of \textit{τόπος} and \textit{διάστημα}. He builds up a schema of four propositions contrasting place and extension, and he further points out five difficulties resulting from the extension-view (\textit{in Phys. paraphr.}, 115, 13- 116, 9). That place is not the extension in between the limits of the surrounding body can be shown, according to Themistius, merely by determining the common conceptions about place and staying close to them. Themistius contrasts place and extension as follows: (1) place contains, but extension is contained, (2) place is separated from bodies, but extension comes and goes along with bodies, (3) the quantity of extension remains the same, but extension in its own right does not, (4) place does not belong to a body, but extension almost needs the body.\textsuperscript{120} Aristotle’s text does not explicitly spell out any contrast between place and extension. For his comparison, Themistius uses four of Aristotle’s claims: that place is a container; that place is not part of a body; that place is not smaller or bigger (than the thing that comes to be in it); and that place is separated from things and not perishable (\textit{Physics}, 210b34-211a3). The contrast between place and extension serves Themistius to shape the following line of thought: Aristotle gave us a definition of place; the concept of extension does not satisfy the same requirements which Aristotle determined for place; therefore, place cannot be an extension.\textsuperscript{121}

According to Themistius, those who claim that place is the extension between the limits are challenged by many problems to which they cannot give any proper reply (\textit{in Phys. paraphr.}, 115, 22-116, 9). He observes five principal difficulties. First, let us assume that we accept place to be extension: is the body in place or is place, rather, in the body? For the extension is in the body rather than the body in the extension, given that the extension is an accident (because it is a quantity), and body is a substance (because it is sensible). Second, when a body comes to be in place, is it the case that it is in place while keeping its own extension (for all bodies are in the extension) or does it throw off its own extension and come

\textsuperscript{119} Themistius, \textit{in Phys. paraphr.}, 113, 7-13: «λείπεται τοίνυν ἡμῖν, ὅτι μηδὲ τὸ διάστημα ὁ τόπος ἐστίν, ἀποδεῖξαι. διάστημα δὲ τὸ μεταξὺ νοούμενον τῶν περάτων τὸν περέχοντος, οὖν τὸ μεταξὺ τῆς κούλης ἐπιφανείας τοῦ κάδσον. πολλαὶ μὲν οὖν ἢ δόξα καὶ τὰς τὸ κενὸν τιθεμένους προσήκουσα, ἡκολούθει δὲ ὅμως αὐτή καὶ ὁ περὶ Χρόσππουν χορὸς καὶ Ἐπίκουρος ἄλτερον. εἰςποιοῦσι δὲ τινὲς καὶ τὸν Πλάτωνα τῷ δόγματι ἤρτηται δὲ ἐκ πιθανῆς μὲν αὐτίας, φανοῦσι δὲ ἱκανῶς». See also \textit{in Phys. paraphr.}, 114, 7-115, 12.

\textsuperscript{120} Themistius, \textit{in Phys. paraphr.}, 115, 21-22: «τὸ διάστημα δὲ ἐστὶν μικρὸν δὲν αὐτὸ τὸ σῶμα». \textsuperscript{121} The reason for my claim is that Themistius actually contrasts the common assumptions about place that Aristotle set out in the \textit{Physics}, taking for granted their truth or their compatibility with Aristotle’s definition of place. This, of course, cannot be understood as a fair contrast between two concepts.
to be only in the extension of place? If the proponents of the extension-view will endorse the second case, then, according to Themistius, they teach us how the extension perishes, although the body does not. But how is it possible that the body’s own extension perishes and yet the foreign extension comes to be? Third, if they affirm that these two extensions exist (that of the body and that of place), then how can the extensions both exist together, and which one will be in the other? Which is the contained and which is the one that contains? Fourth, Themistius questions, how can two extensions exist together and in the same magnitude (i.e., in the same body) in which the other was, but two bodies not do so? For instance, heat, cold, whiteness, blackness, and other accidentals do not provoke any increase of bulk, but extensions can. Finally, fifth, when the body increases, then does the extension of the body increase too, or does the one extension increase, but the other not?

Themistius finds Aristotle’s passage (*Phys.*, 211b19-29) vague, and he tries to reveal the meaning of Aristotle’s words. He interprets the example of the vessel that contains water as a case of a moving vessel. In this respect, he states, whenever the vessel moves, what will happen is that, just as all of the water occupies its proper extension and moves along with the moving vessel, in the same way each part of the water occupies its proper extension and will move along with the vessel. When the vessel happens to be in another place, it will occupy an extension between the limits of the surrounding air, of which (i.e. the air) the extensions and water are parts; and, at the same time, the parts of the water will occupy an extension. This will result in the occupation of multiple extensions at the same spot: one occupied by the whole vessel, another occupied by this part of the water, another by each part of the water, another by the whole water, another which is in between the curved surface of the vessel, and so forth.

Themistius points out a further absurdity—a significant one for Philoponus, as we shall see next—as far as the parts of the bodies are concerned. Each part will be both in its own proper extension and in the extension of the whole (of the water). And as the division

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123 I have chosen to translate the expression «ἐν τῷ ἀὐτῷ μέτρῳ» (in *Phys. paraphr.*, 115, 34) as ‘in the same magnitude’, for, I take it, Themistius means ‘it is impossible to have two extensions in the same body’. The only parallel I have found expressing something close enough to my suggestion is in Simplicius’ *Corollary on place*, 622, 16-17: «αἱ δὲ δύο, πῶς οὖν τι ἐν τῷ ἀὑτῷ ὄγκῳ δύο ὡς εἶναι τὴν τιν τοῦ τόπου καὶ τὴν τοῦ σώματος» (my italics). The context in which this phrase occurs in Simplicius is very similar to Themistius’ set of ἀπορίαι.

124 This may be taken from Alexander of Aphrodisias’ similar argument. See *De mixtione*, 219, 9-18. Themistius agrees with Alexander; generally, his criticisms against the Stoics rely heavily on Alexander’s treatise *De mixtione*. Themistius declares that he has read Alexander’s *De mixtione* in the beginning of his paraphrase of *Physics* book IV (in *Phys. paraphr.*, 104, 9-22).

125 «ἀσυφιστέρον μὲν ἔχει, πειρατέον δὲ, ὅπως ἐνδέχεται, κάκεινα, ὡς ἡ ἁρχή προσθήμεθα, ἐκκαλύπτειν», in *Phys. paraphr.*, 116, 11-12.
goes on *ad infinitum*, the addition of places too will go on *ad infinitum*. For, according to Themistius, if place is extension, it is not absurd that each of the parts in its own right is in place and, therefore, each part in its own right is in the extension, which is part of the whole place. The problem, for Themistius, is that in nature the infinite regress of places is impossible. The target of that argument might be Chrysippus who, according to Stobaeus, said that ‘bodies are divided to infinity and likewise things comparable to bodies, i.e. subsisting in a sense, such as surfaces, place, void, and time’.

Themistius’ explanation and criticisms play a crucial role in our understanding of Philoponus’ reaction against the Aristotelian tradition in the first part of his digression on place. We shall see that Philoponus paraphrases Themistius’ text in his exegetical comments (in *Phys.*, 550, 9-551, 28) before proceeding to its criticisms in the digression on place. But, before going deeper into Philoponus’ criticism, I shall first present Philoponus’ exegesis of the *Physics*, 211b19-29.

### 2.3 Philoponus’ exegesis of Aristotle’s argument

Philoponus conceives of Aristotle’s argument as follows. The first part of the exegesis (in *Phys.*, 548, 30-549, 4) deals with the assumption that there will be infinite places at the same spot (see *Physics*, 211b19-23). Aristotle, explains Philoponus, implies that place, as the extension in between limits, would go through (χωρήσει) the bodily extension in the case of a

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127 Wachsmuth C. and Hense O. (eds.), Berlin: Weidmann, 1-2 (1884, Repr. 1958), Eclogae I. 14.1e. 2-7=SVF, II, 482). Sextus too reports that the Stoics argue for the infinite division of place: «σικός μὲν οὖν τοῖς εἰς ἀπειρὸν τέμνεσθαι λέγοντας τὰ τὰ σώματα καὶ τοὺς τόπους καὶ τοὺς χρόνους (οὕτω δὲ ἔστιν οἱ ἀπὸ τῆς Στοᾶς ταῦτ’ ἥρμοζε λέγειν», (Sextus, M. Χ. 142). Similar criticisms are expressed by Ps.-Galen in his short treatise against the Stoics entitled *Quod qualitates incorporeae sint*: «εἴ τε καὶ <τὰ> συμβεβηκότα σώματα ἔστι, πάν δὲ σῶμα ἐκ ἀπειρὸν τέμνεται <καὶ> ἐκαστὸν τῶν ἀπειρῶν τοῦτον σωμάτων πάν τοῖς ἄλλοις συμβεβηκόσι σωματικοῖς οὐσί καί αὐτοῖς συμβεβήκεν, σκόπει τὸ πλῆθος τῶν ἀτόπων», (Kühn 1821, 19, 469, 10-13; 474, 2-10).

128 The quotation marks that Vitelli adds in his edition of the text should be omitted (in *Phys.*, 550, 9; 551, 20). None of the manuscripts take this passage as a quotation of Themistius’ text. Philoponus is paraphrasing Themistius, therefore the quotation marks are misleading.

129 Philoponus divides the argument into two parts. He clearly reads an argument in lines 211b19-23 of the *Physics*, and another argument in lines 211b23-29 («τὸ δὲ ἑξωρίζει ἑτερόν λέγειν ἐπεχείρημα», in *Phys.*, 549, 11). The latter argument seems to be twofold, its second section being that found in lines in *Phys.*, 551, 20-28. This is also supported by the way Philoponus structures his attack in the first part of the digression on place. He clearly distinguishes between two arguments, the second being twofold, as we shall see later (in *Phys.*, 560, 16-19). Apart from the indication in Philoponus’ text that we should distinguish three consequences (infinity of places, change of place, and plurality of places), I would like to note that Simplicius too explicitly explains the text of the *Physics*, 211b 19-29, by distinguishing three consequences which argue against the extension-theory (Simplicius, in *Phys.*, 574, 23-26). It is worth noting that Philoponus in his exegesis (in *Phys.*, 551, 20-28) incorporates Alexander of Aphrodisias’ exegesis. My claim is based on the evidence of Simplicius’ quotation of Alexander’s exegesis (in *Phys.*, 576, 30-577, 1).
body that came to be in it, so that place would receive the body in each of its own dimensions. Just as the whole extension of place goes through the whole extension of the body, in the same way the parts of place go through the parts of the body. The parenthetical phrase in *Physics* 211b21-23 appears to describe a *sine qua non* of the extension-view in Philoponus: if the part does not go through the part, neither does the whole go through the whole. Moreover, given the infinite divisibility of bodies and of every magnitude, both body and place will be infinitely divisible too.\(^{130}\) Infinite divisibility should be understood as infinity in actuality. For instance, in the case of the water which comes into the vessel and the air which, at the same time, goes out, each part of the water will be in place, by having its own place. Hence there will be infinite places at the same spot in actuality.\(^{131}\)

The second, twofold part of Philoponus’ exegesis aims to explain the passage of the *Physics*, 211b23-29, in which Aristotle states that during the motion of the vessel there will be another place of the place and many places at the same spot. The explanation runs as follows: let us suppose that the place of the water is not the curved surface of the vessel,\(^{132}\) but a different extension, over and above the extension of the water contained within the curved surface of the vessel that receives the water. When the vessel moves, it is clear that

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\(^{130}\) It is rather striking that Philoponus’ exegesis, here, applies to the Stoic view that bodies can go through bodies, or extension can go through extension, as it is presented here. It reminds us precisely of the theory that Alexander of Aphrodisias attributes to Chrysippus (*De mixtione*, 213, 6-13). Further, we might see a direct reference to Stobaeus, who ascribes to Chrysippus infinite divisibility of body and place (Wachsmuth C. and Hense O. (eds.), Berlin: Weidmann, 1-2 (1884, Repr. 1958), *Eclogae*, I. 14.1e. 2-7= *SVF*, II, 482). It is tempting to say that the Stoic view influenced Philoponus’ exegesis of Aristotle’s words; but how could that be, if we consider that Philoponus refutes the passing of bodies through bodies and the actual divisibility of place immediately after this lecture? A plausible answer could be that Philoponus explains Aristotle in such a way that it will serve as a step in legitimating his forthcoming criticisms in the digression on place. I further wonder if the incorporation of the Stoic view appears so that Philoponus can object to it in the digression.

\(^{131}\) The surviving fragment of Alexander’s exegesis, on *Phys.*, 211b19-29, is not of great help in concluding whether Philoponus also has Alexander in mind or not (Rashed (2011) p. 208, fr. 54). The fragment deals with the explanation of lines *Phys.*, 211b21-23, where Aristotle says: ‘For, as the water and air change position, all the parts will do the same thing in the whole as the whole of water in the vessel.’ Alexander seems to explain Aristotle’s phrase as follows: The case which Aristotle considers suggests that there is a moving vessel that contains water. When the vessel moves, the whole vessel and its content (water) are still in the same place or as Alexander says: ‘As all the parts are in the whole, in the same way the whole water is in the vessel.’ That ‘the whole will remain in the same place during the motion of the vessel’ means that ‘the parts will remain in the same place when the whole moves.’ According to Rashed: ‘Quelle conclusion Alexandre tirait-il de ces r éflexions excessivement subtiles? Sans doute, que pour les partisans du lieu-intervalle, tout n’est jamais qu’une partie, que donc il n’y a pas de suprême absolu, comme chez Aristote, de la « partie » la plus englobante sur les parties englobées. Toutes les parties sont autant « subsistantes » les unes que les autres. Or, les corps étant infiniment divisibles, les parties sont en nombre infini; comme par hypothèse elles existent en acte, on aura une infinité actuelle de lieux.’ Two remarks: First, I agree with Rashed’s interpretation insofar as he has in mind Alexander’s objections to the Stoics (see also fr. 47, pp. 205-206). Second, if Alexander truly presupposed an infinite number of parts of the local extension, which here is not obvious at all, then surely Philoponus is also attached to Alexander’s exegesis regarding the actuality of infinite places.

\(^{132}\) «ἡ κοίλη ἐπιφάνεια», in *Phys.*, 549, 12.
the whole vessel will occupy a different place (which is three-dimensional as well), 133 therefore, the local extension will go through the whole vessel and, thus, through the water in the vessel and through the extension that receives the water. As a result, there will be three coincident extensions, namely the local extension in the vessel, the water which is in the vessel, and the part of the place of the whole vessel towards which the vessel moves. What will happen, first, is that the place changes in place, for while the vessel changes (place) and in its entirety comes to be in a different (three-dimensional) local extension of its own, the extension in the vessel that receives the water will be in place; second, if it is possible for two and three extensions to be in the same spot, then many extensions can be in the same spot, and nothing would prevent infinite extensions from being in the same spot. 134 The second section of this argument again concludes with the possibility of having a plurality of places at the same spot, for a place will be in another place. The plurality of places follows as an inevitable consequence (in Phys., 551, 20-29). 135

Having seen Philoponus’ exegesis of Aristotle’s criticism of the extension-view, we can make two remarks, one methodological and one philosophical. First, the exegesis already contains some important elements of Philoponus’ theory of place, for instance the three-dimensionality of place. The reference to the three-dimensionality of place is an important indication of Philoponus’ revisions of the running commentary with respect to his theory of place developed in the digression. Second, Philoponus focuses on the actual infinity of places that the extension-theory implies, either when bodies change place in the vessel or when the whole vessel moves with its content in place. The importance of the latter point relates to Philoponus’ objections to the Peripatetic rejection of the extension-theory. In what follows we shall show that Aristotle’s and Themistius’ claims against the extension-view do not necessarily harm Philoponus’ theory. The proponents of Philoponus’ view do not have to be committed to the absurdities that Themistius ascribes to other extension-theories.

133 For the appearance of three-dimensionality here, see Chapter 3.1.
134 For the sake of the exegesis, Philoponus tries to clarify the argument by demonstrating it with the following example (in Phys., 549, 28-550, 8). Suppose that we have a cup («ξέστης»), that is to say a measure of liquid. If the extension of the inner limits were different from the body in the cup—for instance, water—and if we put the whole cup into a bigger utensil, it is obvious that the (three-dimensional) local extension in the utensil would go through the whole cup, and therefore through its depth as well. Thus it would go both through the water in it and the extension that receives the water; therefore, there would be three extensions at the same spot. Again, if the utensil is put into a pot, the same would happen, and the extension in the pot would go through every extension of the utensil. Now, if we put the ceramic into a jar, the same would happen again and so on ad infinitum.
135 Philoponus gives the example of a moving amphora which comes to be in a place (extension). The amphora will be equal to itself (in regard to its three dimensions, Philoponus adds), so that the place that the water occupies in the amphora will occupy a part of the place that the amphora occupies. So that place will be in place. From this we can infer that more than two places might come to be in the same place and, consequently, that many places can be in the same place.
Consequently, Philoponus’ theory differs from the theories of the Atomists and the Stoics in several aspects.

2.4 Philoponus against the infinity of places
The criticism found in the first part of the digression on place (in *Phys.*, 557, 10-563, 25) is closely related to the way Philoponus interprets Aristotle’s rejection of place as extension. It seems that what triggers Philoponus’ attack is the lack of cogency in Aristotle’s and Themistius’ claims regarding the consequences of an extension-theory.\(^\text{136}\) As we previously saw, according to the Aristotelian tradition, two unacceptable consequences derive from extension-theory: infinity (or plurality) of places and a kind of changing of place. Philoponus raises two objections (the second of which is twofold). He rejects the assumptions that: 1) if place is extension, then there will be infinite places (in *Phys.*, 557, 10-560, 17); and 2) if place is extension, then many extensions will be at the same spot (in *Phys.*, 560, 17-562, 1), and, consequently, place will change or move along with the bodies (in *Phys.*, 562, 1-563, 25). It is neither plausible nor necessarily true, says Philoponus, that ‘if place is extension, then the extension goes through the whole body that comes to be in it, and, thereafter, it (i.e., the extension) also divides the body in such a way as to make an actual infinity of parts, and that the place itself is actually divided to infinity.’\(^\text{137}\) Philoponus discards both the infinity of places suggested by Aristotle and the actual infinity implied by Themistius.

To begin with, I should make a few remarks regarding Aristotle’s concept of the infinite. In *Physics* III (202b30-208a23), Aristotle examines the concept of the ‘infinite’ (τὸ ἄπειρον). He argues that either the infinite cannot exist at all in actuality (it may accidentally exist as, for instance, a quantity is accidental to substance) or we should accept it as potential.\(^\text{138}\) There are a few assumptions, according to Aristotle, from which derive the belief that the infinite exists (203b15-30); one of these assumptions is the division of magnitudes, which, for our purposes here, is of great importance. It is remarkable that Aristotle even uses the concept of place in order to show that no natural body can be infinite (Phys., 205a8-

\(^{136}\) Philoponus starts the digression on place as follows (in *Phys.*, 557, 10-14): ‘To believe that if place is extension, then the extension goes through the whole body that comes to be in it, and, thereafter, it (i.e., the extension) also divides the body in such a way as to make an actual infinity of parts, and that the place itself is actually divided to infinity—this seems to me quite foolish and not even plausible,’ (trans. Furley (1991), p. 15, modified).

\(^{137}\) In *Phys.*, 557, 10-14. In the quoted passage Philoponus is not disagreeing with any known text; however, the citation perhaps refers to some source of Stoic inspiration, and it obviously depends on Philoponus’ interpretation of Aristotle’s argument (*Physics*, 211b19-29).

\(^{138}\) For Aristotle’s conception of potential infinite, see Bostock (2006), pp. 116-118.
Although the text is transmitted with a lacuna, it is clear that Aristotle would never accept infinity of places in actuality, since he uses the impossibility of having infinite places, either of wholes or of parts, as an argument against the possibility of having infinite bodies. In this context, the infinity of places is not only numerical but also extensional, and both sorts of infinity are impossible when we are dealing with natural bodies. It seems that the infinite divisibility of magnitudes (i.e., of natural bodies) does not imply infinite divisibility of place, given that the place of the parts of a whole is the same as the place of the whole. And that is also the claim that Aristotle later made, as we have seen, against extension-theory, in *Physics* IV (211b25-29). Moreover, Aristotle claims that the division of a magnitude should be thought of as potentially infinite, not actually infinite. The question is, why Aristotle would worry about something which, he believes, can only exist potentially?

One should be very cautious here. Aristotle, in *Physics* IV, claims a potential infinity of place that is in accordance, we may say, with *Physics* III. Nevertheless, he takes it as a serious problem deriving from the extension-theory. Philoponus does not comment in his running commentary on the kind of infinity Aristotle ascribes to the proponents of extension-theory. However, he must have thought that potential infinity is permitted as the only way we can think of the infinite in nature and that the acceptance of a potential infinity is not equivalent to the actual infinity that bothers both Aristotle and Philoponus. Although it is unfair to ascribe to Aristotle an attack involving actual infinity, Philoponus still entirely rejects the infinite regress of places. However, we should keep in mind that Aristotle’s assertion of potential infinity in *Physics* IV remains problematic in the light of his views on potential infinity in *Physics* III, and it makes no sense in regard to his objection to extension-theory.

Themistius holds that the actual infinity of places is possible because each part of the extension exists in its own right and so each part of the body occupies a different extension. Especially in a Stoic context, the infinite partition of a body (*ἡ τομὴ*) would result an infinite

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139 *Phys.*, 206b3-20; 207b10-12; 207b19.
141 It seems, however, that Philoponus realizes the problem later (*in Phys.*, 559, 19-27). He opposes Aristotle’s view to Themistius’ fraudulent hypothesis that the extension of place either divides or can be divided by bodies in actuality. Philoponus takes into account the hypothetical assumption that place is a body (*in Phys.*, 559, 19). Even in the case that place goes through that which is in place or the body goes through the place, there is no necessity implying that the same absurdity will occur— that they will divide each other *ad infinitum* in actuality. What could follow from this presupposition is either that a body can go through a body, which is impossible, or that one of the bodies is empty so that it can go through the other. Philoponus explicitly states that Aristotle would never claim that bodies would actually be divided to infinity (*in Phys.*, 559, 24-26).
partition of places. Since bodies are magnitudes, they are infinitely divisible. If so, then place should also be infinitely divisible or, in Themistius’ words, there will be an increase of places in number such that they will process to infinity. Themistius’ way of explaining Aristotle’s text reinforced Philoponus’ suspicions that actual infinity is the problem at hand, because verbally Themistius does not make any mention of potential infinity.

Let us consider Philoponus’ objection to Themistius’ argument. Philoponus gives the incorporeality of place as one of place’s main characteristics. Of course, this was straightforwardly maintained by Aristotle, for if place were a body, two bodies would be at the same spot, which is absurd (Phys., 209a4-6). But to define place simply as bodiless is not enough, according to Philoponus. He further claims that place should be void, an empty space. Philoponus asks his opponents the following question: Is there any necessity either that the void must go through the body which is in it or that, by going through the body, the void must directly and in actuality divide it? What happens when the body goes

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142 Themistius says (in Phys., paraphr., 116, 27-32): ‘And I also suspect another even more absurd consequence concerning the parts. For each part will be both in its proper extension and in the extension of the greater part (i.e. of place); because of the infinite regress of the partition, the addition of places will process to infinity too. For generally, if place is extension, it would not be absurd that each of the parts is in place in its own right; and each part is in its own right in the extension, which extension is part of the whole place.’ In line 116, 17, I read «ἐν» instead of «ἕν», following the Latin translation of Hermolaus Barbarus (1542, p. 127): ‘Ego absurdius quiddam in partibus video.’

143 Rashed (2011, p. 206) comments that: ‘La théorie stoïcienne permet de tout localiser, en particulier les parties du continu (puisque tout, précisément, pour les Stoïciens, est une partie du continu).’ If Rashed is right, then it is easier to comprehend Themistius’ objection to the Stoics. Since Themistius follows Aristotle’s definition of place as the limit of the containing body, he believes that the Stoic view of place as extension and their claim that each part of a continuum can have its own place cause an infinite addition of places «εἰ ς ἄπειρον καὶ ἡ τῶν τόπων πρόσθεσις προελεύσεται», in Phys. paraphr., 116, 30). Themistius implies elsewhere that extensions cause bulk increase (in Phys. paraphr., 115,33-116,1; also see Alexander of Aphrodisias, De mixtione, 219, 9-18).

144 The whole passage (in Phys. paraphr., 116, 18-32) expresses what will happen, if place is the extension, not what could happen. The reason is presumably that the Stoic view allows divisibility of both body and place, as we have seen.

145 The assumption that Philoponus has Themistius in mind is based on the following passage from the digression on place: ‘For when the bodiless goes through body it neither causes any division nor any partition,’ «τὸ γὰρ ἀσώματον χωροῦν διὰ σώματος ὑπεράγεται ὡδὲ τομὴν ἀπεργάζεται», in Phys., 557, 23-24, my italics).

146 «κενὸν γὰρ εἶναι τῷ ἰδίῳ λόγῳ» (in Phys., 557, 18-19) and «χώρα κενή» (in Phys., 557, 31). At the moment, I will not go into the details of that definition (which I discuss in Chapter 4).

147 The subject of the verbal types «λέγοντες», «ἔλεγον» (in Phys., 557, 15), «ὑποτίθενται» (557, 17) is unclear. The whole passage (557, 10-558, 10), I take it, refers to Themistius and to any Peripatetic (Alexander of Aphrodisias may also be included) who follows the Aristotelian tradition. But we should not exclude others—for instance, the Stoics. Philoponus seems to object to Chrysippus’ view of bodies that go through bodies or of both body and place as infinitely divisible (Sextus, Adv. Math., X. 142). Philoponus’ locution resembles the Epicurean and Stoic phraseology (for example, the Stoic term «ἀντιτυπία» which is part of body’s definition, in Phys., 558, 1-2. See SVF, II, 381; Sextus Empiricus, Adv. Math., X. 7 (=SVF, II, 501); Falcon 2005, pp. 51-54. The term «ἀντιτυπία» appears in Themistius, possibly based on Alexander of Aphrodisias’ criticisms, in Phys. paraphr., 130, 9 cf.). The fact that Themistius certainly rejects a view of either Stoic or Epicurean origin with his argument reinforces this claim (in Phys. paraphr., 116, 27-32).
through void is that the body fills it. So there is no necessity to assume that the bodiless causes an actual partition (τομή) of the body.

The example given by Philoponus is that of qualities, for instance, whiteness and heat. Qualities are bodiless, and they cannot divide the body. For it is not in the nature of body to be divided by the bodiless (in Phys., 557, 24-28). Philoponus thinks that it is impossible for something which is unaffected in any way (and which has no bodily quality) to divide a body. He argues that, just as a surface (or even ten thousand surfaces) applied (ἐφαρμόζειν) to a surface causes neither any increase nor any division to it, in the same way a bodiless, three-dimensional (extension) applied to a three-dimensional extension causes neither any division nor any other effect to it. Based on this example, Philoponus turns Themistius’ assumption that there will be an actual division of place against Aristotle (in Phys., 558, 10-19). Aristotle thought that place is equal to what is in place and that the limit of the container is at the same place as the limit of the contained, so that, if both limits are in the same place, then, just as the whole is in the whole, in the same way the part is in the part. The existence of a bodiless three-dimensional extension, which goes through and divides the body, necessarily leads to the conclusion that the parts (of the surfaces) too are actually infinite (given the divisibility of every magnitude ad infinitum). In other words, to the extent that the surfaces (or the limits, in Aristotle’s terminology) are applied to each other and go through each other, they should divide each other—a conclusion which Aristotle could not accept. So the case of a bodiless three-dimensional extension applied to a three-dimensional bodily extension perfectly agrees with Aristotle’s assumption about the incorporeality of place. Thus there is no reason to claim that there will be partition

148 The example echoes Themistius (in Phys. paraphr., 115, 36).
149 I find it striking that Philoponus, on the one hand, rejects the Stoic view that qualities are bodies (Plutarchus, De comm. not. cp. 50, p. 1085c (=SVF, II, 380): «τὰς δὲ ποιότητας αὐτά δὲ πάλιν οὐσίας καὶ σώματα ποιούσι· τάτα δὲ πολλάν ἔχει παραμετά») but, on the other hand, uses another Stoic view (which, of course, cannot be ascribed only to the Stoics) that the bodiless (τὸ ἀσώματον) neither acts on anything nor is affected in any way (Sextus, Adv. Math., VIII. 263 (=SVF, II, 363): «τὸ αὐτὸν κατ’ αὐτὸν τοῦτο τὲ πέφυκεν οὔτε πάσχειν»). My view is that here Philoponus tries to avoid the absurdity that the Stoic theory implies, which considers place and void as two of the four bodiless entities (Sextus, Adv. Math., X. 218= SVF, II, 331) that subsist (ὑφίστανται) and, at the same time, claims that something bodiless can be divided. The impassivity of the void is also attested by Cleomedes, the Stoic astronomer: ‘[Void] is neither acted on in any way nor acts, but is without qualification capable of receiving body,’ Caelestia, I.1.62; translated by Bowen-Todd (2004), p. 25.
150 Referring to Themistius (in Phys. paraphr., 115, 35-116, 1).
151 See Physics, 211a1-2; 211a33-34; 212a29-30. Philoponus presupposes for this argument Aristotle’s claims that place is equal to what is in place and that the limits of the container are together with, or coincident with (ὅμα), the limits of the contained (Physics, 211a1-2; 212a29-30).
when a line is applied to another line or a three-dimensional bodiless extension to a three-dimensional extension.153

Philoponus stresses the non-bodily determination of place and emphasizes, moreover, that place is unaffected (ἀπαθὴς τόπος). Local extension can apply to body keeping itself unaffected.154 Extension qua extension cannot be the cause of division. The concept of «ἐφαρμόζειν» introduced by Philoponus is linked to the unaffected nature of bodiless entities. Philoponus’ account of place escapes this problem exactly because extensions qua extensions, when simply applied (τὸ ἅπλῶς ἐφαρμόζον) to one another, do not divide each other: extension should not be considered as the cause of partition. It would be absurd to claim that a two-dimensional extension—for instance, a surface—is not the cause of division but a three-dimensional extension—for instance, place—does cause division. Extension qua extension—i.e., extension simpliciter (τὸ διάστημα ἅπλῶς)—by itself cannot be a cause; rather the extension compounded by matter and form is the cause of division.155 But a material extension is already a body, and matter is the cause of acting (ποιεῖν) and being acted (πάσχειν) on the forms and on natural bodies (τοῖς πεφυκόσι) made to act and being acted.156

Local extension, according to Philoponus, is a bodiless, immaterial, and, thus, unaffected extension, incapable of causing any physical and corporeal affect (πάθος). An extension as such does not divide, nor can it be divided by the body coming to be in it. Thus, Aristotle’s claim of (even a potential) infinity of places and Themistius’ argument that extension should divide (or be divided by) a body are not necessarily true.

153 As Philoponus puts it (in Phys., 558, 25-26): ‘For what is unreasonable in being able to apply length to length and breadth to breadth, since they are bodiless, but not applying depth to depth?’
155 Philoponus states that all three dimensions are not separated from body, their existence appears in nature through the body, and they can apply to those that have the same nature, i.e., to those being bodiless. The three dimensions are always the three dimensions of a specific physical body. But this is not the case for the local extension (τὸ τοπικὸν διάστημα), for it can be thought of as separated from body, being bodiless, and it exists on its own without its existence being dependent on a substrate, that is to say, I take it, dependent on a body which is the compound of matter and form (meaning again a physical body). Philoponus writes: «καίτοι τὸ μὲν μῆκος καὶ τὸ πλάτος οὐκ ἄνευ σώματος, ἀλλ’ ἐν σώματι τὸ εἶναι ἔχει, ἀλλ’ ὅμως ἐφαρμόζουσι τοῖς ὁμοίοις ἀσώματα γε αὐτά ὑντα, τὸ δὲ διάστημα τὸ τοπικὸν ἀσώματον ἐστὶ καὶ χωριστόν σώματος καὶ καθ’ αὐτὸ ἡφαστηκός, οὐκ ἐν ὑποκειμένῳ τινὶ τὸ εἶναι ἔχον», in Phys., 558, 27-30. I am here in total agreement with F. de Haas (1997, p. 33), who points out that the issue in this passage is that place does not share a common substrate with body.
156 ‘Surely then it is not the extension simpliciter, whatever sort of extension may be, that is the cause of division, but the extension with matter, that means the body; for matter is the cause of acting and being acted on to the forms, of those that generally are of such a nature as to act and be acted on,’ in Phys., 559, 9-12. Philoponus’ unaffected and bodiless extension resembles Epicurus’ position that the void cannot act on or be acted on by bodies: «τὸ δὲ κενὸν οὐτὲ ποιῆσαι οὔτε παθεῖν δύναται, ἄλλα κίνησιν μόνον δ’ ἑαυτοῦ τοῖς σώμασι παρέχεται», Epist. Herod., 67.
2.5 Philoponus against changing and coinciding places

Aristotle holds that local extension implies that there will be another place of the place and many places will be at the same spot.\textsuperscript{157} Philoponus was puzzled by Aristotle’s argument, which seems to have certain plausibility but cannot be totally true.\textsuperscript{158} Philoponus constructs a twofold objection: first, he refutes the thesis that if place is extension, then many places will be at the same spot (\textit{in Phys.}, 560, 17-562, 1) and, second, he refutes the claim that place will move along with bodies which implies a change of place (\textit{in Phys.}, 562, 1-563, 25).

Philoponus’ first refutation repeats the example of lines and surfaces being applied to each other, which he had previously used in a slightly different context.\textsuperscript{159} Given the possibility of applying lines to lines and surfaces to surfaces, what prevents a three-dimensional extension from being applied to another three-dimensional extension, as for instance the void being applied to a body? According to Philoponus, nothing prevents something bodiless from being applied to a body. For example, qualities are applied to a body—e.g. honey is sweet, yellow, sticky, heavy, and moist (\textit{in Phys.}, 560, 30-32). There is nothing to prevent bodiless extensions from being applied to one and the same body. Therefore several bodiless extensions can be at one and the same spot without any absurd consequences arising from that thesis.

Aristotle’s assumption that place changes or moves when, for example, a vessel is moving attracts more of Philoponus’ attention. His second refutation aims to show, first, that place does not necessarily move, second, that place will not be in place,\textsuperscript{160} and, third, that there are not many extensions at the same spot. Philoponus examines two cases, namely a

\textsuperscript{157} To briefly reiterate Aristotle’s position, I quote his argument: ‘At the same time the place will be changing; therefore there will both be some other place of the place, and many places will be at the same spot. But the place of the part in which it moves, whenever the whole vessel moves, is not some other, but the same; for air and water, or the parts of the water, replace each other in the thing in which they are but not in the place in which they come to be, which is part of the place that is the place of the whole universe,’ \textit{Physics}, 211b23-29. Aristotle concludes «ὅστ’ ἔσται τοῦ τόπου τ’ ἄλλος τόπος, καὶ πολλοὶ τόποι ἦμα ἄπονται», \textit{Physics}, 211b24-25. However, once again Philoponus follows Themistius’ text too: ‘If they say that they save both extensions, namely the bodily and the local, how will these two be at the same spot? And which one will be in the other? […] How then is it possible that two extensions can be at the same spot and in the same magnitude in which the other was, but two bodies cannot?’, \textit{in Phys. paraphr.}, 115, 31-35.

\textsuperscript{158} \textit{in Phys.}, 560, 17-19.

\textsuperscript{159} This, Philoponus’ first refutation, seems to be redundant (see \textit{in Phys.}, 558, 3-10; 558, 21-26). In his objection to the first part of Aristotle’s argument (\textit{Physics}, 211b19-23) the problem was already the infinity of places at the same spot, a problem similar to that introduced in the second part of the argument, which claims that there will be many places at the same spot.

\textsuperscript{160} We can read that as an attack on Zeno’s of Elea paradox, which says that place will be in another place and that this place will be in another place, creating an infinite regress of places being in places—this is discussed by Aristotle in the \textit{Physics} (209a23-25; 210b22-27). For a very interesting treatment of Zeno’s paradox, see Rashed (2011, pp. 38-39).
continuous body (a solid sphere) and a body in contact (a vessel). A solid sphere will fill just so much place as its own size; if you move it, then you will not move along with it any of the void that received the sphere, nor the void which the depth of the sphere filled; but now the sphere will fill this, and then it will fill the other portion of the local extension, as it moves. In the same way, the moving vessel does not move the internal (local) extension that receives the water along with it, but rather the whole vessel changes its whole position. The vessel traverses, one might say, the local extension when it moves, and thus the whole vessel changes its whole position in place. But the extension itself will remain at rest, for the void cannot move. This argument implies that, when a body moves, it does not possess the extension which is left behind and the extension is not moved along with the body.

Philoponus also examined a third case, that is a divided body. Let us suppose that the solid sphere is divided and that the external part of the sphere is the container and the internal the contained. When it moves, the sphere does not occupy the previous part of the extension but leaves behind the whole extension which it had occupied. The sphere even in this case—i.e. being divided—will fill the whole place it occupies right now. The sphere (either divided or not) fills the place in the same way. The local extension is neither divided nor moved, for the places of each part of the sphere are now different. They are different (ἕτεροι) in the sense that each body, when moving, is neither standing nor occupying the same portion—i.e. position—of the local extension; its position within the local extension is determined differently right now in relation to the other bodies than it was before. Bodies, for Philoponus, do not carry their places; they rather fill now this, then that position within the local extension. Each part of the sphere is not forced to transfer its own place at the same time; according to Philoponus, the whole moves, and each of the parts leaves the place it occupied before, and because of this each part comes to be in another, different place. A body is always in place. When a body moves, it always leaves behind the former extension of place it was occupying and comes to be in another, different place. Only corporeal extensions can come to be in the extension of place, so two extensions can be applied the one to the other; a third extension cannot be applied because two bodies cannot be in the same place.

Aristotle’s attack on the extension-view (as well as Themistius’ and Simplicius’ interpretations) implies that the water as a whole and each part of the water, when it is

162 It is extremely important to pay attention to Simplicius, who clearly states that the parts of the water are infinite in actuality: «ὅσπερ τὸ διάστημα τόπος ὑποτεθὲν αἴτιον γέγονε τοῦ τὰ μόρια καθ’ αὐτό κινεῖσθαι κατὰ τόπον καὶ ἐν τόπῳ εἶναι, τοῦτο δὲ τοῦ διωρίσθαι τὰ μόρια καὶ τοὺς τόπους, τοῦτο δὲ τοῦ καὶ τὰ μόρια ἄπειρα εἶναι ἐνεργεία καὶ τοὺς τόπους», in Phys., 575, 16-19.
poured from the vessel, has occupied its own extension,\textsuperscript{163} thus many places will be at the same spot.\textsuperscript{164} Here, however, Philoponus refutes this idea by arguing that there is a way to understand the local extension without falling into the trap of having many places at the same spot. He argues that there is neither possession of place nor a dependence of the local extension on (corporeal) substances.\textsuperscript{165}

The following example may shed light on whether Philoponus’ extension-theory necessarily commits itself to coinciding places or not. When I cut a carrot into pieces, I am not dividing place into parts; for what happens, when I cut the carrot, is that different parts of the carrot now occupy new positions within the local extension, which are never the same as those they occupied before when the carrot was a whole. Even if the carrot could be infinitely divided, the result would be infinite parts of carrot filling the local extension and not infinite local extensions at the same spot; if we accept infinite division of place, we just create a pseudo-problematic situation not an actual problem. So, it is clear that there are no coincident places in the same spot.

Applying this interpretation to Aristotle’s example of the water poured from the vessel, the argument is as follows: The part of the water leaving the vessel does not occupy different extensions at the same time, contrary to Aristotle’s apparent argument, when he insists that its place is the same as the place of the whole (\textit{Physics}, 211b25-26). Philoponus would reply that, if we are about to create parts of the water, which in his view is not necessary, then the part of the water fills another place at another time, since is moving. The example of the solid sphere, presented by Philoponus, shows exactly how a body moves or traverses the local extension. When the vessel moves, whether it contains water or not, it is not moving the place it previously occupied, but while it moves, it occupies other places—i.e. other positions within the local extension. The extension-theory that Philoponus defends does not presuppose that the water has parts as it leaves the vessel. All the water moves towards the exit of the vessel, and it all occupies different positions within the local extension at different times, avoiding many places coinciding with each other at the same spot.\textsuperscript{166}

\textsuperscript{163} Simplicius reads the text of Aristotle in terms of having parts of the extension occupied by each part of the water: «ἐσται ἐκαστὸν μόριον ἐν μέρει τοῦ διαστήματος, τοιούτης τὸν γεννημένον τόπον καθ᾽ αὑτό,», in \textit{Phys.}, 575, 2-3.

\textsuperscript{164} In any case, we should not forget that water has no parts unless potentially.

\textsuperscript{165} As Philoponus states in the digression on place, body and local extension do not share the same substratum, so place’s existence is independent from the body (\textit{in Phys.}, 558, 29-30).

\textsuperscript{166} I take it that Philoponus is in complete agreement here with Aristotle’s argument in \textit{Physics} 211a29-b1, where he says that the parts of a whole (i.e., a continuous body), when they move, are not related to their immediate surroundings as something which is in place but as parts in a whole. So, the parts do not move in their surroundings (i.e. in place) but rather with them. There is no reason—this is also the case for Philoponus—
Philoponus explicitly points out later, in the digression on place, because bodies fill out (πλήρωσις) the local extension and do not go through each other (χώρησις δι’ ἄλληλων), the parts cannot have a place in their own right.\(^{167}\)

The fact that Philoponus defends a bodiless extension, deprived of matter and, thus, of the capacity to divide or be divided, ensures that there is no reason to admit that parts of bodies, when individually determined, have their own place. The local extension is filled by continuous bodies. We could say, paraphrasing Aristotle, that the parts of the continuous bodies are not in place individually, but as parts of a whole—i.e., each time their place is the place of the whole body.\(^{168}\) Moreover, the key to comprehending Philoponus’ response to the objection that place changes is, I think, to be found in the consequence of what it means for place to be immobile. Place is filled by bodies (πληροῦται), and not vice versa, because it is immobile; then again, because of place’s immobility, it is impossible for the void to come to be in the body. This suggests that only two extensions can coincide at a time, namely the bodily extension and the local extension in which it comes to be.

Furthermore, Philoponus adds, as a follow-up to the previous thought, an argument to avoid the problem of having infinite or many places at the same spot. Three (or more) bodies cannot be in contact at the same spot. Philoponus claims that there can be multiple surfaces in the same place but that it is impossible that more than two surfaces can be applied to each other in actuality (in Phys., 563, 6-12). What happens in actuality—i.e. in nature (and not in mathematics)—is that only two extensions are applied to each other, namely a body and place.

Places neither overlap nor coincide with each other, for that would imply that two bodies are in the same place, which is impossible—this is the objection Aristotle makes to the extension-view. Since this is the only significant case of many places overlapping each other,

to think of parts of water leaving the vessel instead of a whole and continuous body (water) occupying local extension.

\(^{167}\) Philoponus says (in Phys., 577, 30-578, 4): ‘For this reason also the part will not in itself be in place; for if the body that passed inside the place were actually divided by the extension, it would necessarily follow that, because each part is individually outlined, each part is individually in place; but if the body is not divided by the extension and the extension does not pass through the body, why should it necessarily follow that the part is in place in itself?’ (trans. Furley (1991), p. 40). Simplicius claims that the proponents of extension-theory can escape the danger implying that the parts of the body should occupy their own extensions. Whether Simplicius elaborates this idea based on Philoponus or not, it is worth noting Simplicius’ words: «εἰ δὲ τις τὸ διάστημα ὑπάρχοντος τόπον τὸ δ’ ὄλον τῶν μερῶν χωροῦν, οὐδὲν μὲν καλλίτι καὶ καθ’ αὑτὰ ἐναὶ τὰ μόρια ἐν τόπῳ, οὐ μὴν ἄνεγκτη δημιουργεῖ αὐτὰ ἄλλ’ ὀσπορὶ μόρια αὐτὰ λέγομεν εἶναι, κατοὶ μὴ δημιουργεῖ (διαιρεθέντα γὰρ οὐδὲ μόρια ἐναὶ ἐστὶ), οὕτω καὶ ἐν τόπῳ λέγοντες τὰ τοῦ συνεχοῦς μόρια καθ’ αὑτὰ, οὐκ ἀναγκασθῆσθαι διαιρεῖν αὐτά. ὡς γὰρ ἔστιν, οὕτω καὶ ἐν τόπῳ ἔστιν [... ἄλλ’ οὐδὲ τόπον ἐν τόπῳ γίνεσθαι ἄνεγκτη οὐδὲ πολλοῖς ἁμα τόπους, οὐδὲ μεταβάλλειν τὸν τόπον κατὰ τὴν τοιαύτην ὑπόθεσιν, εἴπερ ἐν ἅπερ τὸ διὰ πάντων χωροῦν διάστημα ἄλλοτε ἐν ἄλλοις ἑαυτὸι μόριοι ἄλλο τι καὶ ἄλλο ὅλον σωμάτων δεχόμενον», in Phys., 577, 32-37; 588, 2-5.

\(^{168}\) Philoponus refers to this argument in the running commentary, (in Phys., 598, 20-21).
two or more bodies could never be in the same place in actuality. Moreover, if we accept that the void can come to be in the void, the right way to approach the issue, for Philoponus, is to consider lines applied to lines and surfaces applied to surfaces. To put it another way, even if ten thousand bodiless extensions were applied to each other, there is no increase of the whole, when applying lines to a line, for it still remains one, and only one, line. This demonstrates that the proponents of Philoponus’ theory of place need not conclude that more than two extensions come to be in the same place nor that place comes to be in place (as Zeno’s paradox suggests, Phys., 209a23-25) nor that place moves at all. The outcome of Philoponus’ argument is that place in its own definition, is a voided, three-dimensional, unaffected, immaterial, and immobile extension, filled by bodies.

The danger of having overlapping or coincident places is expressed by Morison (2002, pp. 124-125). I quote his interpretation: ‘The diastêma theory entails that at every moment \( t \) between \( t_1 \) and \( t_2 \) (where \( t_1 \) is the time at which the vessel starts to empty and \( t_2 \) is the time at which it has just become empty), there is a different interval—or place, according to this theory—occupied by the water left in the vessel. But the interval occupied by the water in the vessel at any point between \( t_1 \) and \( t_2 \) is also occupied at \( t_1 \) by some water, namely a part of the total water in the vessel at that time, and since the motions of the water as it leaves the vessel and of the air as it replaces the water are infinitely divisible, there will be an infinity of overlapping or coincident places occupied by water at \( t_1 \). [...] In effect, this argument suggests that the water in a vessel occupies a particular interval, but that there are infinitely many other intervals within this interval, each of which will be occupied at some point during the water's departure from the vessel by some incoming air.’

I disagree with Morison insofar as he believes that every extension-theory (Philoponus’ theory included) should admit the problems that Aristotle may have—possibly—pointed out. First, Morison’s interpretation presupposes that the extension-theory—he does not specify whose extension-theory he means—implies different intervals causing an infinity of coincident places, which actually reflects Simplicius’ interpretation (in Phys., 575, 1-12). Philoponus’ theory, of course, states that there are different places filled by bodies. What is different, according to Philoponus, is the position that bodies of the universe occupy each time in the local extension in relation to each other. When the water leaves the vessel there is no reason to determine different actual parts of the extension that in \( t_1 \) were occupied by the front part of the water and now at \( t_2 \) are occupied by the back part of the water as it leaves the vessel. Between \( t_1 \) and \( t_2 \) the water occupies a different position as a whole; we determine the position the water now occupies from the previous one in relation to the vessel and the air around the water. Bodies just fill the local extension. The local extension, seen in its own right, cannot be characterized as ‘same’ or ‘different’. Such characterizations would imply that we are dealing with something that undergoes physical changes; yet the local extension, seen in its own right, does not have a material substratum nor does it undergo physical changes in the same way as bodies do. The three-dimensional extension does not essentially change in any physical way, as Philoponus argues in the De aeternitate mundi contra Proclum (XI. 4). The differentia of place are the up, down, right, and left, and these are determined by the position bodies fill each time, or when they traverse the local extension. Therefore, place is not ‘different’ in the sense that you can actually divide the entity called ‘place’ and so create different parts of it.

Second, Morison claims—again reflecting, I believe, Simplicius’ argument, (in Phys., 575, 10-19)—that motions are infinitely divisible and that is how the infinity of overlapping places occurs. Philoponus’ answer is clear: Aristotle or Theophrastus should either prove that there can be infinite places in actuality or they should admit that potential infinity of places is a harmless mental construction, since in nature it is never possible to create infinite places at the same spot. The nature of bodies allows only two extensions at the same spot, namely bodily and local extension. Philoponus’ extension-theory does not suggest in any way that there are ‘infinitely many other intervals within this interval’, as Morison says. If we can create different parts of water, then each part as a different whole this time fills the local extension and thus occupies a different position within the local extension. The actual, or even the potential, partition of bodies and places is not necessary, and it is certainly not implied by Philoponus’ theory of place, as he explicitly denies that parts of continuous bodies have their own place, as if place were body’s possession.
The first part of the digression on place (*in Phys.*, 557, 8-563, 25) concludes by claiming that it has demonstrated how the problems Aristotle ascribes to the extension-theory (*in Phys.*, 563, 22-25) can be avoided. The central line of my interpretation suggests that Aristotle may have been rejecting an extension-theory that was known in his era (the *diastēma* theory and the void theory of Leukippus and Democritus). But we cannot infer from *Physics* IV, 1-9 that all possible extension-theories of place will have the same weaknesses as the theories with which Aristotle struggled. Philoponus relentlessly tries to verify the cogency of Aristotle’s arguments. However, after denying Aristotle’s arguments against place as a sort of extension, he offers a systematic replacement of the Aristotelian doctrine on place with a theory of place which is new, at least in its details.
CHAPTER 3 The Ontology of Place

Having examined Philoponus’ objections to the Peripatetic tradition, with which he defends the definition of place as extension, we may now turn to Philoponus’ account of place. In what follows, I deal mainly with the third part of the digression on place (in Phys., 567, 29-579, 18), which contains some of the most important aspects of Philoponus’ theory of local extension. The whole section aims to elucidate the nature of place. To that end, Philoponus provides us with several syllogisms showing that place differs from the bodies that come to be in it. He relies on everyday observations, such as the measurement of a three-dimensional body or the inspection of clepsydras, which demonstrates the so-called ‘force’ of the void (ἡ βία τοῦ κενοῦ). Furthermore, Philoponus’ approach relies on thought experiments such as the possibility of an empty universe. This theory entails that place can be conceived of as an extension that is ontologically different (ἕτερος) from, rather than ontologically independent of bodies. Consequently, our efforts now focus on determining the kind of «ἕτερότης» Philoponus attributes to place. But first I would like to draw attention to the three-dimensionality of place.

3.1 Three-dimensionality of place
Philoponus’ account of place presupposes its three-dimensionality without any explanation. Right from the beginning of his digression on place, three-dimensionality appears as correlate term to local extension. Aristotle in contrast denies the three-dimensionality of place because he thinks that it leads to absurd conclusions. The three dimensions—namely length, breadth, and depth—define anything that is a body. If place is considered as three-dimensional, then two bodies must be admitted to be present at the same spot. Philoponus

170 The first time three-dimensionality appears in the running commentary is in the second lecture on IV, 1 (in Phys., 504, 29-505, 11). The concept of three-dimensionality also appears in the following passages of the running commentary: in Phys., 504, 29-505, 11; 526, 20-23; 547, 15-16; 549, 16; 549, 25; 549, 33; 551, 23-24. It is reasonable to assume that Philoponus had shaped his account of place before writing the digression, for some of its crucial elements seem to be presupposed. Perhaps the audience of the school of Alexandria was more or less aware of Philoponus’ views. The discussion with his master Ammonius Hermeiou, as presented in the end of the digression on place (in Phys., 583, 13-584, 4), could be used as evidence for such a claim. See Chapter 1.7 n. 41.

171 Aristotle’s argument goes as follows (Phys., 209a4-6): ‘There are three dimensions, length, and breadth, and depth, according to which all body is defined. It is impossible that place be body; for two bodies would be at the same spot’. Themistius follows Aristotle in attaching three-dimensionality to bodies: «τὸ γὰρ εἰς τρία διεστάναι τοῦ σώματος ἐστιν μόνον», in Phys. paraphr., 104, 23-24.
understands this argument as intended to show that place is either a body or something bodiless. He presents an analysis of the argument which divides it into two parts: (A1) showing that place is a body, and (A2) claiming the absurdity of a bodily place.

(A1) Place is three-dimensional.
   Everything that is three-dimensional is a body.
   Therefore, place is a body.

(A2) Every body is in place.
   Every place is a body.
   Therefore, every body is in a body.

In (A1) Philoponus establishes the premise that place is three-dimensional. The syllogism lying behind this premise runs as follows. If a body is in place, then all of its dimensions must be in place; therefore if the body has three dimensions, then its place must be three-dimensional. Yet since three-dimensionality defines body, then whatever is three-dimensional must be a body. Therefore, place is a body. The conclusion of (A1) appears as the second premise of the second argument (A2). If all bodies are in place, and all place is a body (since place is three-dimensional), then all bodies are in body, which is absurd, since it is impossible to have two bodies at the same spot. Aristotle demonstrates, according to Philoponus, that place must be bodiless (in Phys., 505, 11-13).

Take note that Philoponus, at least in one case, presents the three-dimensionality of place as if it were part of Aristotle’s worries. I quote, as an example, Philoponus’ text from his exegesis of Aristotle’s refutation of place as the extension in between the limits (in Phys., 547, 9-16):

173 As Simplicius testifies (Simpl., in Phys., 529, 29-31; Rashed 2011, p. 175-176, fr. 7), Alexander of Aphrodias distinguishes between two arguments. Philoponus’ argument (A1) is identical to Alexander’s—both are constructed as categorical syllogisms (κατηγορικὸς συλλογισμός). But Philoponus constructs a further categorical argument (A2), whereas, according to Simplicius, Alexander constructs his second argument according to the scheme of the second hypothetical syllogism called «ἀντιστροφὴ σῶν ἀντιθέσεων», ‘conversion per contrapositionem’, ‘conversion with opposition’, (see Simpl., in Phys., 529, 34-530, 3; Rashed 2011, pp. 175-176, fr. 7). For a short history of the term «ἀντιστροφὴ σῶν ἀντιθέσεων», see Shorey 1913, pp. 228-229.
175 See Physics, 211b14-19. Philoponus presupposes the three-dimensionality of place five times in the exegesis of Physics, 211b19-29: in Phys., 549, 16; 549, 25; 549, 33; 550, 1; 551, 23-24. In addition, Philoponus treats in a similar way another ἀπορία of Aristotle’s, which considers the possibility that place is one of the intelligibles («νοητόν», Physics, 209a16-18). Place cannot be a νοητόν, for intelligibles are not extended according to magnitude, whereas place is extended because it is capable of receiving extended bodies (i.e., three-dimensional
‘Again, in so far as place, being separate and different, receives ever-different bodies while remaining one and the same, it appears to be an extension that is different from the bodies that come to be in it. For we have not arrived at the conception that place is something from anything other than the mutual replacement of bodies. If, then, it receives these bodies that replace each other while itself remaining one and the same, and if the things which replace each other entering into it are three-dimensionally extended, then it is necessary that the space which receives them is so too; so that place too will be three-dimensionally extended’, trans. Algra—Ophuijsen (2012), p. 63.

In this text, attention should be given to the fact that Aristotle’s argument denies the three-dimensionality of place. Aristotle argues that the three-dimensionality of place is impossible, for all three dimensions define all body. Otherwise, we would have to admit the existence of a bodily place and the simultaneous appearance of two bodies at the same spot. Aristotle does not argue in favour of place’s three-dimensionality in the Physics, though he insists on the equality of place and the body in it. However, Philoponus incorporates three-dimensionality in his arguments as if the problem Aristotle were constantly place as a three-dimensional extension.

How does Philoponus conceive of the three-dimensionality of place? He appears to be very cautious when using the concept of three-dimensionality along with the concept of place. He insists that in the case of place three-dimensionality has nothing to do with body, for then he would be obliged to admit the absurdity of having two bodies at the same spot. A

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bodies, in Phys., 508, 9-20). I tend to read these ‘insertions’ on the three-dimensionality of place as part of Philoponus’ preparations for his attack on Aristotle’s objection(s) later in the digression on place.

176 Lang (2001, pp. 16-17) argues that Aristotle does not deny the three-dimensionality of place. I quote her words: ‘Place again contrasts sharply with surface. Because place is the first limit, it can have no limit. Because it has no limit, place must have every possible interval, length, breadth, and depth. Indeed, this point solves the problem raised at the outset: how can place be in the same genus as body, even though it is not a body. They are in the same genus because both have three intervals, although for different reasons: body has length, breadth, and depth because it is complete magnitude while place has them because, being the first limit, it can have no limit.’ I do not see this argument anywhere in Aristotle’s theory of place. It is clear that Aristotle tries to avoid the identification of place with three-dimensionality because the latter implies that place has a corporeal characteristic. I also have difficulty in understanding the idea that ‘place is three-dimensional because it has no limit’; according to Lang, place has no limit because it is defined as the first limit of the surrounding body, and hence it is three-dimensional. Body is a ‘complete magnitude’, which obviously has a limit, and hence it is three-dimensional. But this argument is a fallacy: beings which have no limit and those which have limit are both three-dimensional. Again, it is awkward to claim that a limit is three-dimensional because it has no limit (for instance, an unlimited line does not have three-dimensions).

177 Those who endorse the three-dimensionality of place are misled, says Philoponus: «λύονται πάσαι αἱ ἀπορίαι ἐξ ὧν ἐδόκει μὴ εἶναι ὁ τόπος, καὶ μάλιστα ὅσαι ἐκ τοῦ κακῶς λαμβάνειν τὸ τί ἐστι τοῦ τόπου ἀνεφύοντο, ὡς οἱ λαμβάνουσαι ὅτι ὁ τόπος τριχ ῇ ἐστι διαστατόν», in Phys., 526, 21-23. I believe that Lang’s claim that Philoponus replaces the phrase “which is between limits” with the phrase “in three dimensions” and so attributes to Aristotle the view that it is impossible that place be an interval in three dimensions, i.e., extension’ is stressed too much (2001, p. 20). Philoponus conceives of the absence of three-dimensionality as a major weakness of the Aristotelian tradition directly deriving from Aristotle.
three-dimensional extension cannot be a definition of what body is. Body is a substance, and quantity is accidental to substance: hence three-dimensionality is accidental to substance. Body is composed of matter and such-and-such a form, but because quantity is an inseparable accident (ἀχώριστον συμβεβηκός) of the body, it is in this sense that body is three-dimensional. Philoponus relies on Aristotle for this argument. He quotes a passage from the Physics, where Aristotle criticizes Melissus, who said that being is infinite and further maintained that being is a quantity. Aristotle’s objects that the infinite is a quantity and quantity is accidental to being.

The point that Philoponus attempts to make, through Aristotle’s objection to Melissus, is that three-dimensionality belongs to quantity (κατὰ τὸ ποσὸν): hence, three-dimensionality is accidental to substance. Since body is a substance, three-dimensionality belongs to body accidentally. Consequently, three-dimensionality cannot define what body is but must rather be something accidentally and yet inseparably attributed to it—inseparably in the sense that we cannot think of a physical body which does not have three dimensions. But this does not imply that whatever is three-dimensional it is automatically a body. At this point, we may see more clearly in which sense τόπος is a concomitant of all natural beings, as discussed in the preface of Philoponus’ commentary on the Physics: place is an inseparable incidental common to all natural bodies because it is one of their natural concomitants.

The three-dimensionality presented in Philoponus’ account of place should be distinguished from the three-dimensionality of bodies. Place as a bodiless and immaterial extension is just another instance of three-dimensionality. Philoponus also considers the three-dimensionality of place to be different from another instance of three-dimensionality that relates to prime matter. The notion of three-dimensionality (τὸ τριχῇ διαστατόν) is

178 Philoponus attacks the position that three-dimensionality defines only bodies by saying (in Phys., 561, 5-25): “For we will not accept either that the three-dimensional directly is a body or that it is a definition of body; for the body is three-dimensional in respect of being something else.”

179 See Physics, 185a32-37. Melissus, the Presocratic philosopher (5th century B.C.E.).

180 In line 561, 23 of the digression on place I read ἀλλ' ἀχώριστον συμβεβηκός, following manuscript Laur. Plut. 87,6 (G) and Trincavelli’s edition (1535), instead of reading ἀλλὰ χωριστόν συμβεβηκός, as Vitelli does (in Phys., 561, 23). Philoponus clearly says that quantity is an inseparable accident of body, and this is exactly the point that he wants to stress by quoting Aristotle’s objection against Melissus.

181 Philoponus, after discussing Aristotle’s argument against Melissus, announces an ἀπορία (in Phys., 561, 25-27), which he examines later on in the digression of place (in Phys., 578, 5-579, 18). For further discussion on this subject see Chapter 3.4.

182 See in Phys., 2, 13-16.

183 I will not go into the details of Philoponus’ view on three-dimensional prime matter here. The best guide on the issue is Frans de Haas (1997, pp. 262-263; 280-290).
attached to what Philoponus calls ‘the indeterminate quantified matter’;\textsuperscript{184} but this is another instance of the three-dimensionality which differs from the voided extension that is place.\textsuperscript{185} However, place resembles matter with respect to separability: insofar as matter can be thought of as separated from qualities, so place can be thought of as separated from bodily extension.

Philoponus, as we shall see, builds an account according to which place is a bodiless, three-dimensional, unaffected, immaterial, voided, always filled, immobile, and unchangeable extension. Place must be bodiless, for otherwise we would have to deal with the problem of having two bodies at the same spot. Place must be extended in three dimensions because it is always the place of three-dimensional bodies. Place must be unaffected, for if not, then it would be material. Place is necessarily immaterial, for otherwise it would be a cause affecting bodies. Place must be void, since a body cannot be in a body, and therefore it must be filled by bodies and not vice versa. Consequently, place must be immobile, since the void cannot move, but bodies move within place. Finally, place cannot undergo any kind of change because it is not a body.

The last sentence of the first part of the digression on place states that Philoponus considers place to be different from the bodies that come to be in it («ἕτερον τῶν ἐγγινομένων σωμάτων», in Phys., 563, 23-24). What Philoponus means by ‘different’, how place is different, from which things place is different, and how the differentiation of place fits Philoponus’ account of place will be shown after the examination of the third part of the digression on place, which now follows.

3.2 Place as measure

Philoponus distinguishes between ‘place as inseparable from the bodies that come to be in it’ and ‘place as different (ἕτερος) from the bodies that come to be in it’. He insists that we can think of the three-dimensional local extension independently of the bodies. This kind of independence is expressed (a) in terms of a body which comes to be in something else, namely a three-dimensional extension, a place; (b) in terms of bodiless extensions not necessarily linked with bodies; and (c) in terms of a place being deprived of any body, being

\textsuperscript{184} Philoponus calls it «ἡ ποσωθεῖσα ὕλη» (in Phys., 520, 19-25) or «ἡ ἐγκεκριμένη ὕλη» (in Phys., 687, 30-35); the term also appears in the running commentary (in Phys., 515, 19). In addition, we must not identify the three-dimensionality of place with the three-dimensional unqualified body or second substrate (τὸ ἀποικόσιον σῶμα, τὸ δεύτερον ὑποκείμενον); see, in Phys., 579, 3-13.

\textsuperscript{185} Frans de Haas (1997, pp. 47-50) provides us with a list of the aspects of three-dimensionality in antiquity.
empty. However, it is only in the third part of the digression that Philoponus explicitly argues in favour of a certain kind of independence that place has from bodies. This independence is expressed in terms of an essential difference (ἕτερότης).  

The replacement of bodies (ἡ ἀντιμετάστασις τῶν σωμάτων), for Philoponus, proves that place is different in every way (ἕτερον πάνη) from the bodies that come to be in it (in Phys., 567, 29-569, 17). Consider a body moving through the air. According to Philoponus, if it is true that the moving body does not go through another body and that it is three-dimensional (not a surface), then when it cuts the air, it comes to be in the place where the air was. The air is replaced by the moving body in the same quantity as the moving body itself. If the air is ten solid cubits, then the space (χώρα) receiving it necessarily has the same quantity—i.e., ten solid cubits. Place is what the air and the moving body occupy; it is what they exchange with each other. Philoponus emphasizes two things with this argument. First, place is something solid and, second, place is the measure of what comes to be in it.

To begin with, we need to explain what is meant by ‘solid’ (στερεός). The adjective στερεός is used in mathematics to describe a three-dimensional object, namely a type of object which has length, breadth, and depth. The occupation of place by three-dimensional bodies leads to the observation that place must also be solid, that is to say three-dimensional. Place receives the body in its entirety, all its three dimensions together. The important feature of Philoponus’ example is its observation that three-dimensionality is a quantity (ποσόν) that determines the bulk of a body. Therefore a body needs to fill a quantity of place equal to its own. This quantitative equality results from the (essential) three-dimensionality of place and body.

The cause, according to Philoponus, of the equality between place and what comes to be in it is that place is a measure of what is in place. Equal (ἴσος) in this context means that place’s three-dimensionality must be exactly proportional to the three-dimensionality of the body. However, some difficulties with Philoponus’ position need consideration. Based on everyday observations, we might think that place cannot in any way be a measure of a body, for we think of place as something immaterial and undetermined (ἀόριστον). Another
difficulty is how to conceive of the link between measure, measurement, and the notion of place. What does Philoponus mean when he describes place as measure?

Philoponus examines place as measure only once in his commentary on the Physics (in Phys., 568, 14-569, 7). In order to clarify his thesis that ‘place, as the measure of what is in it, is considered to be the cause of its equality to bodies’, he looks at the case of the vessel.¹⁹¹ The vessel is the measure of what it contains,—for instance, air. The air occupies the extension which extends between the curved surfaces of the vessel. If the vessel has a specific solid (three-dimensional) quantity, then the air in it should have the same solid quantity. When the water, which is a solid body, replaces air, it occupies as much place as the air occupied (i.e., the vessel is full of water). Now, if the water is measured by the vessel, the measure (vessel) is of equal quantity to what is measured (water) by it. The conclusion then is that the measure must necessarily be equal to what is measured.¹⁹² For, as Philoponus emphasizes, the measure and the measured body must be both solids—i.e., three-dimensional—not two-dimensional surfaces.

When we fill the vessel and measure the water, we say that the space of the vessel is equal to the space of the water. But what exactly are we measuring in this case? Is it the perimeter of the surface of the water? Are we measuring the air that was previously in the vessel? Is it the surface of the vessel that we are measuring? Philoponus excludes these three possibilities by answering that what we are measuring is the solid (στερεόν)—i.e., the three-dimensional quantity of the bodies: we measure neither the perimeters, nor the planes, nor the surfaces of either the vessel or the water; nor we are measuring something which previously was in the vessel—like the air—which exchanged its position with the water.¹⁹³ We look only for the solid surfaces.¹⁹⁴ This kind of measuring, i.e., the measuring of solids, measures the quantity of solids or, to put it differently, the three-dimensional quantity of bodies. Given that the vessel is a three-dimensional body, the water it contains must be three-dimensional, for the water is measured by the vessel. Philoponus further claims that when the water is

¹⁹¹ The same analogy between place and a vessel occurs in Aristotle’s Physics. See, for instance, 208b3; 209b28-30; 210a24; 210b10-16.
¹⁹² The same idea occurs in Simplicius’ Corollarium de loco (in Phys., 634, 11-15). Simplicius also testifies that his teacher, Damascius, had a theory about place, which involved the concept of measure and was propounded in a treatise probably called Περὶ ὀρθομον καὶ τόπου καὶ ὁρὸν. Simplicius himself seems to endorse a view according to which place is measure (in Phys., 644, 10-654, 19). On Damascius’ influence on Simplicius see Golitsis-Hoffmann (2014, pp. 162-172).
¹⁹³ ‘Did we then measure the surface of the water, in order to see how much its perimeter is? Not at all, but we measured the solid; wherefore, we do not attach ourselves to what sort of shape the measure could have, but we look only at the solid surfaces’, in Phys., 568, 26-29.
¹⁹⁴ Philoponus says: «τὰ στερεὰ ἐμβάδα», in Phys., 568, 29. I translate the term as ‘solid surfaces’ (see Liddell-Scott 1882, p. 458); Furley suggests that the term be translated as ‘solid contents’ (1991, p. 29).
contained in the vessel, we admit that the extension between the limits of the vessel, occupied by the water, *is* something. Place is the measure of something: it measures the three-dimensionality of bodies, and therefore, Philoponus claims, place is something different (*ἑτερον τι*) from the bodies filling it.

This conclusion raises a number of difficulties and thoughts regarding the nature of place. If place is something different from the bodies that come to be in it, can we, then, assume that place is ontologically independent from anything that comes to be in it? Philoponus’ answer to this seems to be crucial not merely for his account of place but also for his conception of the void:

‘So the extension in between is something over and above the bodies that come to be in it. And I am not saying that this extension either ever is or ever can be empty of all body; this is in no way possible, but I say [the extension] is different from the bodies that come to be in it and in its own definition empty, although it never exists without body; just as we consider matter to be different from the forms, although it can never be without form. So we consider the extension to be different from all body and empty in its own definition, yet other bodies always fall into it, while it remains immobile both as a whole and as regards its parts; as a whole because the cosmic extension that receives the body of the whole cosmos could never move, and as regards to its parts because it is impossible for the bodiless extension to move and to be empty in its own definition.’

195 I consider this passage to be one of the most crucial parts of Philoponus’ extension-theory. Aristotle, and later his commentators, already express a worry about the existence of a local interval (*τὸ διάστημα*), that exists over and above the bodies that come to be in it. Aristotle argues that such a theory will conclude that the extension should be somewhere in the universe, which is absurd. Philoponus proposes a kind of extension that escapes the danger of such consequences. According to Philoponus’ theory, this extension never in any way is or can be empty of all body. It seems legitimate then to ask how this extension differs from bodily extension.

195 «ἔστιν ἄρα τι τὸ μεταξὺ διάστημα παρὰ τὰ ἐμπίπτοντα σώματα, καὶ οὐ δήσοι τοῦτο λέγω, ὅτι τὸ διάστημα τοῦτο ἢ ἔστι ποτὲ ἢ δύναται εἶναι κενὸν παντὸς σώματος ὑπαρχονς, ἀλλ’ εἶναι μὲν φημι ἐτερον παρὰ τὰ ἐμπίπτοντα σώματα καὶ τὸ ἴδιο λόγῳ κενὸν, μηδέποτε μὲντοι χωρίς σώματος, διόπερ ἀμέλεια καὶ τὴν ἑλλην κοινῇ τῶν μὲν εἰδὸν εἴρην εἶναι, μηδέποτε μὲντοι χωρίς ἑίδους εἶναι δύνασθαι. ὡστος οὖν καὶ τὸ διάστημα ἐτερον μὲν εἶναι παντὸς σώματος καὶ κενὸν τὸ ἴδιο λόγῳ νοοῦμεν, ἀλλ’ άει μετεμπίπτει εἰς αὐτὸ ἄλλοτε ἄλλα σώματα αὐτὸ ἀκίνητον μένον καὶ κατὰ ὅλον καὶ κατὰ μόρια, κατὰ ὅλον μὲν διότι τὸ κοσμικὸν διάστημα τὸ δεξάμενον τὸ τοῦ κόσμου παντὸς σώμα ὑφάσκοντ’ ἁν κινηθῇ, κατὰ μόρια δὲ διότι κινεῖται τὸ ἀσώματον διάστημα καὶ τὸ ἴδιο λόγῳ κενὸν ἀδύνατον», in Phys., 569, 7-17.
Philoponus establishes a particular distinction in his account of τόπος. Place is different from the bodies that come to be in it and empty. This is the definition of place per se. But he also defines place with regard to bodies: place does not exist in nature as an extension without body. Philoponus illustrates this ‘double’ determination of place with the example of matter, which is different from the forms, but nevertheless cannot exist without form. In the same way, local extension differs from body in the sense that we think of it as empty in its own right, that is to say deprived of body. Nonetheless, there is always a body that comes to be in the extension.

An understanding of place in its own right emerges from the fact that the local extension cannot act in any way upon the bodies and vice versa, for this kind of extension is immaterial and unaffected (ἀπαθές). But we should not consider this as ontological independence, but rather as an ontological difference. Place ontologically—i.e., essentially—differs from bodies, for place can be considered per se as empty and, therefore, place should be considered as something different from the bodies that come to be in it. Ontological independence might well suggest that a local extension deprived of body really exists somewhere in nature. But Philoponus wishes to avoid such complications.

The claim that place is measure (τὸ μέτρον) suggests that place and body have at least one common characteristic. More precisely, their similarity in this respect is based on their

196 This ‘double’ determination of place, along with Philoponus’ statement that place is ontologically—i.e., essentially—different from the bodies that come to be in it, may have had a great impact on medieval thinkers. Edward Grant (1978, pp. 554-562) discusses in detail a distinction between internal and external space. The concept of internal space implies that place is equated to the bodily extension, in the sense that place is the body’s dimensions—an idea linked with the notion of mathematical magnitude. The concept of external space claims that place may well be external to the cosmic plenum, since it is different from bodily extension and it can extend beyond the universe as a separate, three-dimensional voided space. I do not endorse, however, a view implying that Philoponus sets out this ‘double’ determination in the terms the thinkers of Middle Ages onwards do.

197 The example of matter seems to be Philoponus’ preferred way of describing his ‘double’ determination of place, for he almost always uses it whenever he attempts to explain this ‘double’ determination in both digressions of the commentary (in Phys., 569, 10-11; 574, 28-575, 2; 579, 3-6; 694, 19-23). The source of the analogy seems to be his interpretation of Aristotle’s opinion on why some people might think of place as analogous to matter (Phys., 209b6-17). In the first lecture on Physics IV, 2, Philoponus explains the analogy of matter in the same terms—he will later use in the digressions (in Phys., 515, 14-24). He briefly comments on this analogy in the corresponding λέξις of the first lecture on IV, 2, in which he fully elaborates it. He explains that, prime matter never remains without the different forms it receives, but prime matter is still an extension undetermined in its own definition, as Plato defines it in the Timaeus. Just as indefinite matter is different from magnitudes but always receives them, place too is different from the bodies that always come to be in it. A similar idea, suggesting a Platonic background, appears in Alcinous’ Didaskalikos (§11, 23-25) where we read: ‘It is a very reasonable argument that, just as matter is devoid of quality, so quality should be immaterial; but if quality is immaterial, then it would be incorporeal’, transl. by Dillon (1993), p. 20. In addition, Giacomo Zabarella (1533-1589) uses a similar idea, which, as he says, derives from Plotinus: ‘si materiam mente contemplamur abiunctam a formis, nil aliud concipere possimus nisi corpus quoddam vastum, et indistinctum, et molem quandam vacuam, ut dicebat Plotinus’ (De rebus naturalibus libri XXX, col. 217. I copy Zabarella’s text from Grant (1978, pp. 554-555, n. 15).
capacity to have a quantity attributed to them—i.e., on their three-dimensionality. Inasmuch as place is bodiless, simply dimensions empty of body,\textsuperscript{198} it cannot measure, for example, the weight of the body; but place can measure the three dimensions of the body. Given that the body is in place, then the measure—i.e., the place—must be equal to what is measured—i.e., the body. Thus, place and the contained body are identical as far as their three-dimensionality is concerned, but they still are not fully ontologically identical because a body is neither bodiless extension nor simply dimensions. Therefore, place can be thought of as different from the bodies in it and, at the same time, as filled by bodies.

Philoponus’ analogy of place as measure gives rise to some further reflections. Undoubtedly, Philoponus uses the concept of measure in order to make clearer the equality between place and the bodies in it. The nature of place seems completely undetermined, for how can we conceive of place as something different from the bodies in it if we define it as empty dimensions? In other words, how does this undetermined place become comprehensible to us?\textsuperscript{199} Philoponus’ assumption that we can think of place as deprived of bodies could be reiterated in the following way. What shape would place have? What would be the quantity of its three dimensions? Does the extension extend infinitely, in the sense of chaos? Of course, Philoponus never asks these questions. On the other hand, we do not have evidence of a completely undetermined three-dimensional extension in Philoponus. His theory does not imply a concept of place that looks like chaos. The specific extension in a sense has an equal shape and equal dimensions to that of the specific body occupying it. It seems that Philoponus considers the universe to be unchangeable, that the cosmic extension extends as far as the whole universe does. The several generations and corruptions of natural bodies within the universe seem to be entirely unproblematic. The generation and corruption or the growth and diminution of bodies do not affect place, for place is not attached to bodies. Each time a body is generated (or is corrupted, or grows, or diminishes) the remaining bodies in the universe rearrange their positions within the extension. Obviously, we should take into account that all natural bodies simultaneously undergo generation, corruption, growth, and

\textsuperscript{198} Philoponus says: «διαστάσεις μόναι κεναί σώματος», in Phys., 567, 32.

\textsuperscript{199} Philoponus’ efforts to make the local extension comprehensible fall into the field of geometrical measuring because he wants to avoid an explanation which exceeds the field of physics (as measuring the angles of a triangle is a subject of geometry, so measuring solid surfaces (τὰ στερεὰ ἐμβαδά) is a subject of geometry). See, in Phys., 567, 29-569, 17 and especially lines 568, 14-569, 7. This kind of measuring—i.e., the procedure of measuring a certain kind of solid (στερεόν), the three-dimensionality of a body, and its place—is a matter that geometry deals with. However tempting it may be, I would not claim that we should think of Philoponus’ local extension as an abstract geometrical scheme like, for instance, the ὀκτάεδρον, which is a solid figure.
diminution, so there is no danger that, at some point, there will not be space equal to body’s dimensions to fill.

An attempt to grasp Philoponus’ concept of ‘place totally deprived of body’ is necessarily linked to corporeality. It is true that Philoponus thinks of the three-dimensionality of place as it relates to a specific body. If we had a picture of the whole universe, then maybe we could think of its place as having this particular quantity of three-dimensionality (and maybe a particular shape). This abstract and undetermined three-dimensional extension is conceivable in the sensible world only through the bodies which fill it. The tree in front of me fills an extension equal to its three dimensions; if we abstract the tree from the field, then we can think of the empty three-dimensional space remaining—that is to say empty place in its own right even if the tree is not there anymore. Of course, in actuality these three dimensions are no longer the specific place (or three dimensions) of that tree, since air, for example, now fills the extension. Nonetheless, we can think of the specific extension occupied by that tree. What we would not be able to grasp is the place of nothing; we cannot think of a place having such-and-such three dimensions if there is no specific body to occupy it, because that would imply the actual existence of an empty space within the universe.

Instead, Philoponus establishes an extension-theory according to which bodies necessarily are somewhere. Therefore, what they fill must be ontologically different from them; otherwise, two or more bodies would fill the same place, which is absurd. This kind of extension is bodiless and equal to what comes to be in it; it is also immobile. Bodies come to fill the extension of the cosmos (the extension of the whole universe in which natural bodies exists). In order to conceive their equality, Philoponus states that the place can be seen as a measure equal to what is measured (contained body).200

3.3 The empty universe

Examples, demonstrations, and experiments often accompany Philoponus’ arguments throughout the digressions on place and the void. Of course, physics could not be taught otherwise. A distinction can reasonably be made between experiments based on natural phenomena and the sort of experiment which scholars nowadays call ‘thought experiments’.

200 There is a certain similarity between the schemes ‘place-body’ and ‘time-motion’ in Philoponus’ conception of the relationship between time and motion later in the commentary: time appears to be the measure of motion (in Phys., 741, 21-742, 28).
Thought experiments are hard to define since they are used in different circumstances and different disciplines (for instance, philosophy, physics, and mechanics) and therefore have different characteristics. However, we can safely draw some conclusions from the thought experiments of antiquity. The present section discusses the role of the thought experiments which Philoponus uses throughout the digressions of the commentary. Some remarks on this subject are necessary before we enquire into the details of the argument. Philoponus does not call his examples either experiments or thought experiments. In order to introduce a thought experiment, he uses the verbs «νοῶ», «ἐννοῶ», and «ἐπινοῶ», which literally mean in English ‘I think’, ‘I reflect’, and ‘I contrive’. The Greek verbs leave room for multiple interpretations. For example, «ἐννοῶ» means to think of something or to reflect upon something, but the verb «ἐπινοῶ» also describes the grasping of a hypothetical assumption—it implies mental constructions based on imagination. Products of the imagination can be plausible without always being possible. Thought experiments usually cannot played out in reality. In general, we will not be far from the truth if we assume that we are dealing with mental examples and constructions that do not correspond to natural phenomena. Nonetheless, sometimes thought experiments may involve phenomena which occur in nature, as for instance in the second experiment discussed below. Furthermore, thought experiments tell a story. Often they contain a narrative, or they describe something impossible.

I mainly focus on the following two thought experiments, with which Philoponus demonstrates the ontological difference (ἑτερότης) of place in the third part of the digression on place (in Phys., 567, 29-579, 18):

Examine it then in this way too. If there is not some different extension receiving them, over and above the bodies that come to be in it, let us

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201 For a helpful survey of the history of the term (16th-20th centuries), see Roux 2011.

202 Examples taken from the digression on place: in Phys., 562, 17; 574, 15; 575, 23; 579, 8; 580, 24-30; 582, 31; 583, 1; 9; «κατ' ἐπινοιαν», in Phys., 574, 14; 575, 18. Thought experiment can be introduced with the expression «δεδόσθω μοι τῷ λόγῳ», in Phys., 576, 1; 688, 24; or the verb «ὑποτίθημι», in Phys., 574, 20 cf. The same terms are also sometimes used by Philoponus in the digression on the void to mark off simple hypothetical examples, which, I think, differ from thought experiments since they describe cases that may occur in reality (in Phys., 681, 24; 681, 33; 682, 17; 688, 14; 688, 21; 691, 18). Of course, there are other ways to introduce a thought experiment, as for instance: in Phys., 687, 29 cf.; 689, 26 cf; 693, 15 cf.

203 I rely greatly on the observations made by K. Ierodiakonou (2011, pp. 47-49), and P. Lautner (2011, p. 52). See also Martin’s (1999, pp. 279-287) introduction to impossible hypothesis.

204 I note that both thought experiments are also brought into the discussion by Philoponus to refute Themistius, who did not understand how it is possible to think of place as different from bodies, and against the criticism—unfair, according to Philoponus—that Themistius made against Galen. See Philoponus, in Phys., 575, 27-578, 4 and Themistius, in Phys. paraphr., 114, 7-115, 12.
remove in thought the bodies in between and see if it is really so. So, then, if we think of the bodies within the universe as not existing—that is to say earth and water and air and fire—what would remain, then, in between but empty extension? For we could produce straight lines from the centre to the circumference everywhere; so what else is it through which we produce the straight lines but three-dimensional empty extension? [...] For if there were nothing in between the limits of universe’s concave surface, the bodies in it being removed in thought, then the limits of the universe would collapse. But this is impossible; for it is not because of the bodies in it that the universe is as it is, but rather it would be the same, even if there were nothing there.


So give me a bronze sphere, not full but partially hollowed out; it is obvious that what is trapped inside was air. So, if I think of the interior air, not corrupted into non-being, but changing either to earth or water (for of course this is not impossible), the earth or water evidently occupies a smaller place than the air—namely the remaining place in which previously there was air, but now there is nothing—then void necessarily exists. But Themistius says against this that the bronze of the curved sphere would collapse before either the body inside flows out or changes into earth. And that is truthfully said, but not knowingly. For why, tell me, would the bronze collapse? [...] Besides, and even if this cannot happen in nature, let me grant that in theory the bronze does not collapse and that the air inside changes into earth, and you will see that there is some extension in between different from the bodies in it.

The first thought experiment (T1) comes as an alternative argument to show that local extension differs from bodily extension and that it exists. The narrative of the experiment is as follows. The universe contains bodies made of the four elements (earth, air, fire, and water). If we remove (ὑφέλωμεν) bodies in thought,205 what would happen? If we think of the bodies as non-existent, then what else would remain, if not empty extension? Our narrative

205 Sextus describes the same thought experiment, which derives, it seems, from the Stoic tradition: «καὶ κατ’ ἐπινοιάν ἐκτάσεις μὴ ἂν ἦν; ὡς τὸ ἐντὸς ἀέρα, οὐκ ἐχεῖ, ἀλλὰ μήδεν ἦν, ὡσαύτως εἴχεν>, in Phys., 574, 13-19&575, 17-20.
even allows us to imagine producing straight lines in every direction from the centre of the universe to the circumference. That through which we produce straight lines must be something which is not a body, since we removed all body: it would be empty extension. In addition, if there were no such empty extension between the limits of the concave surface of the universe, the limits of the universe would collapse.

Philoponus asks us to imagine taking away the bodies of the universe and leaving behind only its boundaries. He is aware of the impossibility of such an action happening in reality. And because he is concerned that people might accuse him of talking nonsense, he explains why he has chosen to base his argument on an impossible hypothesis. In fact, he says, the impossibility of a hypothesis has no bearing on its validity as a demonstration. When something impossible follows from a hypothesis, we can then refute the hypothesis from the impossibility of the consequence; this does not mean that we cannot hypothesize the impossible for the sake of seeing the nature of the things (in Phys. 574, 21-24).

The impossible consequence that the limits of the universe would collapse, if there were no such extension, refutes the hypothesis that we can actually remove all bodies from the universe. At the same time, the thought experiment demonstrates that the extension exists. We can imagine an empty universe, or we can imagine an empty space equal to the universe and create a narrative explaining the impossible assumption that the limits of the universe collapse. We can even imagine producing straight lines throughout this empty extension. In doing so, we experiment with impossibilities in order to understand the real nature of things.

It is worth noting that Philoponus provides a further explanation of this impossible consequence which, at first glance, seems odd. He says that the universe is as it is not because of the bodies in it but rather because the absence of the bodies in theory does not disturb the universe at all: the universe would remain as it is (in Phys., 575, 19-20). This seems to imply that there is a cosmic local extension occupied by the universe. It seems that, for Philoponus, the extensionality of the universe and the extensionality of all bodies are not identical, though bodies constitute the universe. Therefore, the universe extends as much as it does independently of the existence of bodily extensions in it.

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206 Again, Philoponus plays with analogies from the geometrical field, in which we can draw figures and lines in thought, as in the case of place measuring solid surfaces. See Philoponus, in Phys., 568, 14- 569, 6.

207 Furley asks the wrong question, I think, when he says (1991, p. 37, n. 36): 'This is a strange argument. The collapse of the heavens is of course as theoretical as the removal of the interior bodies. Why should the heavens not collapse in theory? It must be because their nature as a set of hollow spheres is essential to them, and not conceptually dependent on the fact that the hollow interior is filled. Philoponus would no doubt defend this by claiming that God made them so.' Philoponus defends the independent extensionality of the heavens. The limits of the heavens, of course, can collapse in thought, as Furley puts it. They collapse by removing the extension that bodies occupy within these limits. But the thought experiment at hand opts to remove the bodies inside the
The second thought experiment (T2) draws our attention away from the universe and its limits. Let us think of a bronze sphere which is partially hollowed out and imagine that the body occupying that space in the sphere is air. Now, think of the amount of air contained in the sphere, and imagine that the air can change into water or earth. If the air changes into earth in the sphere, the earth occupies a smaller place than the air previously occupied. Philoponus seems to imply that when the air changes into earth a part of the hollow sphere that was occupied by the air remains empty because the earth (or the water) is denser than the air. As a result, the bronze of the concave surface of the sphere would collapse either before the air came out from the sphere or before the air changed into earth or water. The thought experiment involves a hypothesis that can be actually proved, namely that air might change into water or earth. The experiment states the impossible hypothesis that the bronze of the sphere will not collapse against the natural, so to speak, rule of the ‘force’ of the void, which prevents gaps in nature. The part of the local extension inside the bronze sphere, which remains empty in thought, appears as something essentially different from the bodies occupying the hollow sphere.

The two experiments, taken together, constitute an advantageous argument, for they show two ways of thinking about place. Place differs ontologically from bodies either in regard to what actually happens in nature or in regard to what we mentally construct about nature. The absurd consequences of both thought experiments, on the one hand, save the phenomena (the limits of the heaven or the surface of a hollow sphere cannot collapse in actuality) and, on the other hand, provide a plausible explanation, showing the existence and

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universe, rather than the extension they occupy. It seems that genuine thought experiments are counterfactuals. T1 draws our attention to one of the two aspects of place—that of pure extensionality deprived of bodies—which Philoponus earlier stated as conceptually possible. We can think of place without bodies in it, although that can never occur in reality.

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208 I quote again the translation of the passage: ‘So give me a bronze sphere, not full but partially hollowed out; it is obvious that what is trapped inside was air. So, if I think of the interior air, not corrupted into non-being, but changing either to earth or water (for of course this is not impossible), and the earth or water evidently occupies a smaller place than the air—namely the remaining place in which previously there was air, but now there is nothing—then void necessarily exists. But Themistius says against this that the bronze of the curved sphere would collapse before either the body inside flows out or changes into earth. And that is truthfully said, but not knowingly. For why, tell me, would the bronze collapse? […] Besides, and even if this cannot happen in nature, let me grant that in theory the bronze does not collapse and that the air inside changes into earth, and you will see that there is some extension in between different from the bodies in it.’ in Phys., 575, 21-30; 575, 33-576, 3.

209 Here Philoponus involves Themistius. He agrees with Themistius that the bronze of the sphere would collapse in reality, but he accuses Themistius of ignorance of the real cause of that phenomenon. Themistius states that the reason for the collapse is that nothing could prevent the bronze of the concave surface from collapsing and make it remain there without body (in Phys. paraphr., 114, 19-20). Philoponus claims that it is the ‘force’ of the void (ἡ βία τοῦ κενοῦ) that prevents the actual presence of the void (in Phys., 575, 31-576, 3). For Philoponus’ conception of the force of the void in relation to his theory of place, see Chapter 3.5.

210 Martin (1999, pp. 295-296) describes Philoponus’ thought: ‘If we suppose per impossibile that a body is removed from its place without replacement, we shall not be drawn into logical inconsistency; but no non-mental process can overcome the horror vacui to effect such a removal.’
difference of the local extension from bodies. Though the thought experiments demonstrate
the abstract (ontological) difference of place from bodies, Philoponus also draws on everyday
experience in order to make his argument more convincing and easily comprehensible, as we
shall see in the following section.

3.4 Place and the ‘violation’ of nature

We have seen that Philoponus aims to illuminate, by a series of arguments, the sense in which
place can be thought of as something different (ἕτερόν τι) from the bodies that come to be in
it. The last argument brought by Philoponus to describe the ontological difference between
place and body is the so-called «ἡ βία τοῦ κενοῦ», which might translate into English as ‘the
force of the void’. The ‘force’ of the void, according to Philoponus, convincingly illustrates
two rather significant claims concerning local extension. First, that local extension essentially
differs from the bodies, and, second, that this extension never occurs without body.

The Greek expression «ἡ βία τοῦ κενοῦ» is known from medieval times onwards as
‘horror vacui’ (or fuga vacui). Horror vacui conveys the idea that, in order to avoid empty
space in nature, bodies move even against their natural motion in order to fill a possible gap.
The origins of the term «ἡ βία τοῦ κενοῦ» in antiquity are quite obscure, though Philoponus
describes it as notorious. In fact, arguably the few sources deriving from antiquity show
that the ‘force’ of the void was a concept with which physicists (and even doctors) were so
familiar that they had no reason to specify the origins of the concept. Let us consider a few
examples of this concept in ancient writers. Aristotle’s long discussion of the void (Physics
IV, 6-9) criticizes the Atomists, but without making a straightforward reference to horror
vacui. Strato of Lampsacus, the head of Aristotle’s school in Athens after Theophrastus,
could be one of the ancient philosophers to involve the concept of horror vacui in their
theories on the void. Our main source for the suggestion that Strato may held such a theory
dates from the 1st century in Hero of Alexandria’s work Pneumatics. Galen reports, in his

will argue why this may not be the best translation of the word «βία» to use with regard to Philoponus’ theory of
place.
212 ‘Furthermore, to one who looks to the truth, the violence of the void will clearly bring forward both points, I
mean, both that the extension is something different from the bodies that come to be in it and that it is never
213 He calls it «πολυθρύλητος», in Phys., 570, 17.
214 It could be the case that Aristotle ascribes the horror vacui to the Atomists in the Physics, 215a22-24.
215 See, Pneumatics, I, 16, 20. The text does not name Strato, but scholars tend to attribute the theory described
there to him. I will not get into the details of the question whether Strato really involved horror vacui in his
commentary on Plato’s *Timaeus*, that Erasistratus used the expression «ἡ πρὸς τὸ κενοῦμενον ἀκόλουθια» to describe nature’s avoidance of the void. If this is true, then Erasistratus’ theory seems to be one of the oldest to which *horror vacui* is ascribed. Galen himself widely uses the same expression in his works. Finally, the term occurs in Ps.-Alexander’s *Problemata* (II. 59. Ideler, Problem 59, p. 69).

The question is: how does «ἡ βία τοῦ κενοῦ» appear in nature? What is it that indicates that nature abhors the void? One of the standard practical experiments demonstrating the ‘force’ of the void is the clepsydra (ἡ κλεψύδρα), which literally means the ‘water thief’. Clepsydras are narrow-mouthed vessels, which have a wide base with many small holes in it. The clepsydra was already known to Aristotle and his predecessors. A detailed description of the clepsydra is given by Simplicius in his commentary on the *De caelo,* and a simpler one by Philoponus in his commentary on the *Physics.* The experiment of the clepsydra, according to Philoponus, works in the following way. Assume that there is a vessel (clepsydra), which has a mouth at the top and many small holes in the bottom, and that it is filled with water. When we lift the vessel and cover at the same time with our finger the hole at the vessel’s mouth, we observe that the water does not go out through the small holes at the bottom of the vessel, despite being heavy and having so many exits. The water hangs aloft, which is, in a sense, contrary to nature. When we unblock the

theory of void or not. More likely, his theory of interspersed void in bodies could have included the discussion of *horror vacui* as well. One can read about the whole discussion on Strato’s theory of the void and the origins of the concept of *horror vacui* in antiquity in the article of Lehoux D., (1999); also read Algra (1995), pp. 58-69; Furley (1985). For the medieval adaption of *horror vacui* read Grant E., (1981).

216 Galen, *in Platonis Timaeum commentarii fragmenta* (cod. Paris. gr. 2838), fr. 17, 35-39; only some fragments survive from this commentary. There is no much evidence showing Erasistratus’ source(s). But from this text we also infer that Galen refers to Erasistratus’ terminology as an alternative term for something Plato stated in the *Timaeus*. Plato, of course, is not using the exact expression, but it seems that he had in mind a concept similar to the *horror vacui*.

217 Galen, *De naturalibus facultatibus*, 64, 4-10. Galen, *De instrumento odoratus*, 5, 12, 1-13, 1. Additionally, another example of the use of the concept can be found in Oribasius (*Collectiones medicæ*, 60, 4, 1-7, 1): «φέρε γονὶ εἰ δυνηθῆσιν αὐτῷ αἰτίαν ἐπείρην. διαστελλομένος δὴ τῷ θώρακι συγκινήσεται πάντως ὁ πνεύμων ὡς τῆς πρὸς τὸ κενοῦμενον ἀκόλουθιας ἔλκομενος ἔπειται γὰρ ἅπαν τῷ κενοῦμενῳ τὸ πληρὸν, ὡς ἐπὶ τῶν αὐλισκῶν τῶν εἰς τὸ θὸδορ καθιεμένων ἕπεται δὴ δήλον, ὅταν ἐκμυζήσας τῷ στόματι τὸν ἀέρα τὸ ὕδωρ ἐπισπᾷται διὰ μακρᾶ πάνοικῶς ὄψας πάρῃ φόσιν ἅπαν φερόμενον. οὕτως ἦν τί βιαῖν ἢ πρὸς τὸ κενὸν ἀκολούθια, καὶ εἰ τί γε ἦν ἐπιστᾶτερον ἀναπληροῦν τὸ μεταξύ τῶν ὀργάνων, καὶ ἔκνυτος ἔμενεν ὁ πνεῦμων, ὅπερ ἐν ταῖς μεγάλαις τρόφοις συμβίων».  

218 See, *De caelo*, 294b20-21. The figures in Guthrie’s translation are extremely helpful, (1960, LOEB, pp. 226-229). Also see Aristotle’s *Physics*, 213a27; *De respiratione*, 473a15- b10; *Problemata*, 16.8. The clepsydras where already known in Empedocles’ era (fr. 100), see Furley (1957), pp. 265-274.

219 Simpl., *in De caelo*, 524, 17- 525, 4; *in Physics*, 647, 26-30.


221 See, *Phys.*, 569, 20-28. Children were exercising that with fresh eggs. We were creating holes with a needle (one in the upper side of the egg and three in the lower side). Then, we were covering the upper hole with our finger. The liquid of the egg was not moving downwards to its proper place going out of the egg shell as it should, according to the law of gravity.
hole at the vessel’s mouth, we observe that the water goes out in force through the holes in the base.

This phenomenon, Philoponus claims, is caused by the ‘force’ of the void. When the vessel’s mouth is covered by a finger, the water does not go out through the small holes because the air cannot take the place of the water. The replacement of bodies (here between water and air) is impossible: the air can neither fill the vessel from the upper mouth, because it is covered, nor come in through the thin, small holes in the bottom, because the water is there; furthermore, the air outside the vessel cannot press the water finding an entrance, nor it is possible for air to come in and for water to go out at the same time.\textsuperscript{222} This demonstrates that nature abhors the void; differently expressed, the ‘violence’ or ‘suppression’ of the void is responsible for the phenomenon which occurs in the use of the clepsydra.\textsuperscript{223} The ‘force’ of the void, according to Philoponus, explains (explanans) why the water behaves contrary to its nature, when the water does not move towards its proper place, but rather remains at rest. The ‘force’ of the void is not the fact to be explained (explanandum); it rather explains why nature prevents the danger of an actual void in the physical cosmos, of an extension being totally empty without being filled by body.

The ‘violence’ of the void secures nature against empty space. We observe this behaviour in the exchange and motion of bodies. Philoponus seems to be positively in favour of the continuity of bodies within the local extension—this can be seen especially clearly in the example of the vessel with the pipes.\textsuperscript{224} The continuity of bodies in Philoponus’ theory comes under the scope of the concept of \( \pi\lambda\rho\omega\sigma\zeta. \) Bodies fill the local extension creating a continuous universe. In fact, the ‘violence’ of the void implies this continuity. For example, if the water could escape through the small holes when the clepsydra is lifted up and the upper mouth of the vessel covered, then what would replace the water in the clepsydra except

\textsuperscript{222} There are two more examples given by Philoponus by means of demonstrating the ‘force’ of the void (\textit{in Phys.}, 570, 9-571, 9). The first example describes the perforated vessels containing wine: the wine goes out from the holes unhindered, for air presses the wine through the hole. The second example described is that of the vessels that contain water and someone drops a pipe in it and sucks the water through the pipe out of the vessel. The water moves upwards contrary to nature. Although there would be a risk of creating void when sucking out the air in the pipe, the ‘force’ of the void moves the water contrary to nature, for the ‘force’ of the void always comes to fill what is about to be emptied.

\textsuperscript{223} Later I will proceed to translate the Greek word \( \eta\beta\imath\alpha \) by the English terms ‘violence’ or ‘suppression’ and not by ‘force’. The word \( \eta\beta\imath\alpha \) in the context of Philoponus’ theory of place means rather a violation of nature’s laws; it denotes a threat. In addition, Philoponus explicitly argues against those who believe that place has a kind of force. Place (i.e. void) does not force anything to act, but rather bodies force the void keeping away from nature an actual empty extension; thus, I do not prefer the term ‘force’ to refer to Philoponus’ concept of place. I am in favour of Golitis’ (2008, p. 181, n. 235) French translation of the word \( \eta\beta\imath\alpha \) as ‘violence’.

\textsuperscript{224} \( \kappa\alpha\tau\alpha\tau\ \tau\ \sigma\nu\nu\varepsilon\chi\varepsilon\varsigma\varsigma\ \zeta\gamma\iota\varepsilon\tau\alpha\nu, \) \( \kappa\alpha\tau\alpha\tau\ \sigma\nu\nu\varepsilon\chi\varepsilon\varsigma\varsigma\ \zeta\gamma\iota\varepsilon\iota\varsigma\iota, \) \textit{in Phys.}, 570, 28-29, 571, 8-9. The idea also occurs in Aristotle’s \textit{Categories}, 5a8-14.
empty space? And what can remain in the vessel other than empty space, if we suck the air from the pipe and the water does not move upwards at the same time? On the one hand, these experiments demonstrate the continuity of bodies in nature which occurs through the phenomenon of *horror vacui*, but, on the other hand, they show, according to Philoponus, that the local extension is something different from the bodies in it. Since the void must be something that nature fears, then the void in some sense is different from the bodies.

Philoponus seems to be allusively criticizing the Peripatetic tradition when he asks whether the extension remaining in the clepsydra can be occupied. So he excludes the case of a two-dimensional surface. If this extension is a surface, as the Aristotelian account of place suggests, then we cannot determine the quantity of the body in all of its dimensions when the body is in it (*in Phys.*, 571, 18-27). The Aristotelian definition of place fails to explain what the remaining space in the clepsydra would be in the example where the water moves to its proper place rather than moving contrary to nature. As Philoponus puts it, to hold the view that the limit of the surrounding body can either be filled or emptied is absurd. And if some Aristotelian philosophers insist that there is no need to explain what the remaining space would be, since after all we only observe the water in the vessel without caring about a hypothetical result, another complication occurs: the Aristotelian definition also fails to explain why the water behaves as it does. Aristotle’s theory of the motion of the four elements would force him to admit that this case is contrary to water’s nature. But he would need an explanation for the phenomenon of the non-replacement of bodies in this case; he would need to explain why the water remains still. However, we can only speculate about Aristotle’s position on the phenomenon of *horror vacui*.\(^{225}\) We can simply assume that the *horror vacui* would be an awkward subject for him to deal with, as he states that void does not exist: there is no reason for nature to be threatened by something that does not exist.\(^{226}\)

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\(^{225}\) It is worth pointing out that Aristotle, at least in the *Physics* (213a24-27) and in the *De caelo* (294b20-21), is not using the clepsydra example in order to explain the *horror vacui*. In the *Physics*, the clepsydra example appears where Aristotle describes in which ways Anaxagoras and others tried to show that air exists. Philoponus’ exegesis in the running commentary points out that, when Anaxagoras and others were using the clepsydra, they were doing so in order to show that air is something; they were not trying to refute the void’s existence (*in Phys.*, 607, 12-608, 10; 612, 15-613, 6).

\(^{226}\) Themistius claims that those who use the clepsydra try to show that there is an empty extension in which bodies are coming to be. He accepts, in regard to the replacement of bodies, that when we put a stone into water, the stone occupies a bulk equal to the bulk of the replaced water (*in Phys. paraphr.*, 133, 22-134, 2). But what if we put a body in the void? Will it occupy a bulk of the void equal to itself? Philoponus does not take any position on that question. But, needless to say, Themistius’ objection does not threaten Philoponus’ position: void is bodiless—i.e. it cannot have any bulk itself—so bodies fill just as much empty extension as their three dimensions need.
There is, however, a serious difficulty with Philoponus’ argument. What if the fact that nature does not allow void does not imply that void exists, as Philoponus wishes to show, but it rather signifies its non-existence? For exactly the same experiment, namely the clepsydra, could be used to show that void does not exist. Philoponus’ argument could be criticized as circular: it seems as if the ‘force’ of the void consequently proves the existence of the void, but its existence is already presupposed in the definition of the horror vacui phenomenon. We would expect that the ‘force’ of the void results from void’s existence. But what is Philoponus attempting to prove with this argument? Philoponus’ manoeuvre does not aim to prove the existence of the void, but rather that there is an extension, which differs from the bodies. The ‘force’ of the void should not be considered as a term of the void’s definition. In fact, the definition of place is presupposed, but does not derive from the definition of the horror vacui.

Still, that the void violates, or threatens, puzzles us. Philoponus also describes the phenomenon as a power in nature that often constrains bodies to move contrary to nature and forces nature to behave differently from its regular state.²²⁷ The term ‘power’ would be perfectly comprehensible, if Philoponus did not elsewhere claim that place does not have any power at all.²²⁸ To begin with, Philoponus’ discussion on the power of place in the digression on place does not originally relate to the topic of place’s essential difference (ἑτερότης). However, it is tempting to discuss two passages from Philoponus’ commentary on the Physics in which he takes a clear position on the voided place and the attribution to it of power. So, in order to understand in what sense the void is a power which threatens nature, I shall refer first to the fourth part of the digression on place and to the ‘corollary rejecting the suggestion that the place of bodies has any power or quality’.²²⁹

Aristotle believes that place exists and ascribes to it a kind of power because the four elements move in the right directions—i.e., light bodies naturally move upwards, and heavy bodies naturally move downwards (Phys. 208b8-11). Themistius, Philoponus’ constant interlocutor, does not take any clear position on the subject; when he paraphrases Aristotle’s relevant passage, he emphasizes that place has some differentiations, which are, so to speak,

²²⁷ «τίς ἐστιν ἢ ἐν τῇ φύσιν δύναμις ἔπι τὸ παρὰ φύσιν κινοῦσα τὰ σώματα», in Phys., 572, 3-4; and «τί οὖν βλέπεται ἢ φύσις παρὰ φύσιν ἢ μένειν ἢ κινεῖσθαι τὸ ὕδωρ; δήλον ὅτι τινα μή τὸ ἐντὸς κενὸν μείνῃ [...]», in Phys., 573, 17-19.

²²⁸ We find this claim twice: once a few pages after the discussion on the violence of the void in the digression on place (in Phys., 581, 18-31) and once in a corollary in the running commentary which I call ‘corollary rejecting the suggestion that the place of bodies has any power or quality’, (in Phys., 632, 4-634, 2).

²²⁹ See in Phys., 581, 18-31 and in Phys., 632, 4-634, 2 respectively.
powers. Nevertheless, Philoponus, in his running commentary on the *Physics* IV, 1, holds that Aristotle considers place as an object of striving (τὸ ὀρεκτὸν) and explains Aristotle’s thoughts on the idea that place has natural powers and differentiations (διαφοράι).

Philoponus says in the digression on place that some people ridiculously hold the view that because bodies desire place—namely the limit of the surrounding body—each moves to its proper place. He argues, instead, that bodies desire the arrangement that they have been given by the demiurge. As we have seen, Philoponus asserts that the extension cannot act upon bodies and *vice versa* (*in Phys.*, 559, 14-18). So, he cannot accept that place is the object of desire. Moreover, he states that the proper place of each body is only an instance of the universal order. The object of striving cannot be the extension in its own right, but rather the arrangement (τάξις) given by the demiurge. The order of the bodies in the universe means that each body fills its proper place. We need to understand the case of bodies that are forced (or suppressed) to unnaturally fill place within this framework. When the arrangement is disturbed, bodies try to move just as much as needed in order to achieve the arrangement they received from the demiurge; in other words, bodies try to reach the closest possible position with respect to this arrangement (*in Phys.*, 581, 23-26). But there is something more than this: the bodies moving to their proper place desire the order imparted by the demiurge, and this is when they have their being most fully and achieve their perfection.  

To occupy your proper place means to achieve your perfection. To achieve your perfection is to be ordered according to the demiurge. Thus your perfection mirrors the...
perfection of the universe. Philoponus displaces the power from place to the demiurge, or to be more precise to the order that the demiurge determined. It is not the case that place has the natural power to move the bodies to their proper position, but rather that bodies desire to preserve their own arrangement in the universe. Place, being totally unaffected, cannot possess any power.

The corollary in which Philoponus deals with the issue of the power or quality of place closes his first lecture on Physics IV, 8 (in Phys., 632, 4-634, 2). Philoponus begins the corollary with an objection addressed to the proponents of the void theory, who cannot explain why bodies move in this or that direction and are unable to determine when a body is up or down within the extension. He considers that this attack on the void theory actually maintains that place, as the limit of the containing body, can cause the motion of simple bodies; hence, place (which is not the undifferentiated void) has power because we can determine when a body is up or down. The argument in the corollary is slightly different from that in the digression on place. For instance, the word demiurge is absent. However, the corollary helps to clear up what Philoponus means by the term «τάξις» in the digression on place. The order or the arrangement of bodies in the universe derives from the such-and-such relation of bodies. The proper relation bodies have to one another constitutes a continuous universe. Bodies, which complete the universe and have some natural impulse, desire this relation to other bodies; in other words, they desire to be in a position within the local extension because they desire that relation to other bodies. That the demiurge is not mentioned as having established this order, does not prevent us from assuming that the demiurge stands behind this arrangement of the universe. Nature contains bodies which are (naturally) capable of having such-and-such a relation to one another.236

'And I say the same for the universe (for the cosmos is a kind of great living being); because it is good for the consistency of the cosmos that the bodies completing the cosmos have such-and-such relation

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235 It is worth noting that right before the corollary Philoponus copies (in Phys., 631, 21-632, 3) Themistius’ text (in Phys. paraphr., 128, 9-17) almost word for word. At first glance, the corollary appears as Philoponus’ response to Themistius. But Themistius states that the extension cannot be the cause of the natural motion of bodies because the void is undifferentiated (ἀδιάφορον) in any sense (in Phys. paraphr., 127, 28-128, 8) following Aristotle (Phys., 214b13-23). But I am convinced that the primary source for both Themistius and Philoponus is Alexander of Aphrodisias: «Ἀριστοτέλει μὲν λέγοντι τὸν τόπον πέρας τοῦ περιέχοντος σώματος ἑπεται τὸ καὶ ἐκατετον τῶν σωμάτων ἐκλόγας ἐπὶ τὸν οικεῖον φέρεσθαι τόπον· πρός γὰρ τὸ συγγενές σῶμα ἐκλόγαν αὐτὰ φέρεσθαι, οὐ τὸ πέρας τόπος ἐστίν αὐτοῖς ὁ κατὰ φύσιν τε καὶ οἰκεῖος, καθ’ οὗς <δὲ διάστημα> ὁ τόπος, πῶς ἐτούτως ἀκολούθησι ή κατὰ φύσιν τῶν σωμάτων ἐπὶ τοὺς οἰκεῖους τόπους κίνησις; ἀδιάφορον γὰρ τὸ διάστημα καὶ οὐδὲν μὴλοιλο τὸ ἄλλο οἰκεῖοτέρον τινι αὐτῶν>, Rashed (2011), p. 224, fr. 81.

236 It is important to note that Philoponus believes that bodies are generated by nature to occupy this or that place which happens to be the proper place of each body (in Phys., 632, 13-633, 5).
one another, it is reasonable that each of the bodies possesses some natural impulse, desiring to have such-and-such relation to the rest (of the bodies); it is because it [the body] happens to occupy this part of the extension, that [the body] reasonably desires the extension, not because it [the extension] has some power, but because it is good for the whole and for each of the bodies existing and being well ordered [...]. It is not the case that it [the body] desires the local extension for its own sake, but for the relation to the other bodies,' in Phys., 633, 5-14.237

Bodies occupy place in relation to other bodies. The network of bodies, namely their such-and-such relation to one another, constitutes the whole universe. Philoponus, however, excludes the possibility that place can be the object of bodies’ striving. The local extension, seen as the cosmic, universal extension, has no differentiation in its own right—that is to say, we cannot attribute to it any differentia, as for instance up and down (in Phys., 633, 22-28). From this perspective, place is different (ἔτερος) from bodies because the pure three-dimensional extensionality cannot be characterized by up and down. Differentia of place occurs when place is seen as the place of bodies (sensible aspect): it is when the cosmic bodies take up their relations to one another that the differentiation of up and down emerges. Local extension in its own right has neither any power nor quality (conceptual aspect). And the motion of bodies towards their proper places is solved by Philoponus as the desire for the order of the cosmos, or, in other terms, for the specific relation (position) of the bodies.

It would be reasonable to ask how it is possible for Philoponus, on the one hand, to accept that the void is a kind of threatening condition that could violate nature and, on the other hand, to deny that the void has any kind of power. However, Philoponus detects no inconsistency between the two propositions. Philoponus does not seem to worry about the concept of the suppression of the void. Place has no power because bodies act in such a way as to avoid the existence of empty space. I take it that, for Philoponus, the ‘violence’ of the void comes as a further explanation of a specific case of motion within the local extension. The ‘violence’ of the void describes a motion contrary to nature and, as we have seen, the desire of bodies to move towards their proper place is nothing more than the actualization of nature: bodies possess such-and-such relation to other bodies, filling such-and-such position within the local extension.

237 «τὸῦτο καὶ ἐπὶ τοῦ παντὸς φημή (καὶ γὰρ μέγα τι ζῷον ἐστιν ὁ κόσμος), ἑπειδὴ ἄγαθον ἢν πρὸς τὴν τοῦ ὅλου κόσμου σύστασιν τοιάνδε σχέσιν ἔχειν πρὸς ἄλληλα τὰ τὸν κόσμον συμπληροῦντα σώματα, εἰκότως ἔκαστον τὸν σωμάτων ὁμήρουν τινα φυσικὴν ἔχον τὸ ἐφίεσθαι τῆς τοιάνδε πρὸς τὰ λοιπὰ σχέσεως, ἑπειδὴ τοῦτο συμβαίνει αὐτῷ τόδε τὸ μόρισον τοῦ διαστήματος καταλαβοῦντι, εἰκότως ἐφίεται τούτου, οὐ δὲ τὸ ἐκεῖνο ἔχειν τινὰ δύναμιν, ἀλλ’ ὅτι καὶ τὸ παντὶ ἄγαθον καὶ ἐκάστοτε τὸ τε ἔλαι καὶ τὸ εἰς περίεστιν […]. ἐφίεται οὖν τοῦ τοπικοῦ διαστήματος οὐ δὲ αὐτὸ, ἄλλα διὰ τὴν πρὸς τὰ λοιπὰ σχέσιν». 
Returning to the question of how to explain the unnatural motion of bodies because of the ‘force’ of the void, I would like to add a few remarks. Forced motion in the Aristotelian universe is, of course, acceptable, but only if a body is the cause of the forced motion of another body—the void cannot in any way be the cause of any motion (Physics, 214a26-32; 214b28-215a6). Aristotle explicitly rejects motion through the void. With regard to the experiment of the clepsydra, Aristotle would answer that the water remains at rest because it has nowhere else to go, that is to say he considers it as a case where we do not have replacement of bodies—though, obviously, bodies should exchange place(s). Philoponus interprets the water being at rest as an action contra naturam. It is not enough to say that the water cannot move anywhere, as an Aristotelian would say; we should take a further step and ask what the cause of such action is. The ‘violence’ of the void, for Philoponus, is what makes water’s move contrary to nature. This kind of power is not a natural one—i.e. it is not the same power that my hand transmits to the stone, when I throw it. For example, a law prevents us from doing specific things that would violate the regular state of the society. Laws in one sense suppress us either from doing or from omitting certain actions. In that sense, sometimes a law can be a threat to civilians, or can prevent someone from acting in a specific manner. This is how I think the term «βία» should be understood.238 The void seems to be a threat to nature in the same way: it threatens and presses natural bodies to fill places other than those in which they properly belong. But what is it that the actual presence of the void in nature threatens? The universal order: if the void existed, it would violate nature’s order in the sense that there would be something empty among bodies. To avoid this violation, nature makes bodies move contrary to their proper direction so that the order does not collapse.239

Philoponus’ argument regarding the ‘violence’ of the void saves the phenomena, for it explains the results observed in experiments such as the clepsydra and vessels with pipes. In addition, his belief that place has no power is an argument in favour of the preservation of the order of the whole universe. In all cases bodies tend to preserve their own arrangement in a particular state so that they are closer to the good they desire. It is in the nature of the universe to be well-ordered in accordance with the demiurge’s arrangement.240 Bodies, according to Philoponus, have their being fully and achieve their perfection when they are

238 Sedley’s suggested interpretation (1987, p. 145) intends ‘[… to take the force (bia) in question to be of only a very attenuated kind. This will be rather easier if we take it to be the purely notional force of a non-existent vacuum.’

239 This definitely is a disturbance of the arrangement given by the demiurge, but it is a legitimate disturbance, necessary for maintaining the continuity of the cosmos.

placed in the right order within the local extension. As a result, the local extension must be different from the bodily extensions filling it. The ‘violence’ of the void indicates the continuity of bodies in nature and the ontological difference of local extension from bodily extension:241 if nature were to allow the existence of the void, it would be something different from the bodies.

3.5 Place, substance, qualities, and quantity

Philoponus’ account of place involves references to substance, qualities, and quantity. Any account of place that comes after Aristotle’s Categories could reasonably be expected to include a discussion of the substance (οὐσία) and its relationship to place, since all natural bodies are somewhere, and, as Aristotle expresses it, we need to define where substances are (τὸ ποῦ).242 Philoponus’ theory, however, does not examine place in the context of Aristotle’s categories. In defending his theory, Philoponus distinguishes place from substance, he questions the relationship between place and quantity, and he draws analogies between place and qualities. The digression on place contains most of Philoponus’ reflections on these issues.243 Here, I start with a few remarks on place and qualities; I will then continue by examining Philoponus’ way of dealing with place and quantity, and, finally, I will conclude by discussing Philoponus’ thesis on the relationship between place and substance.

At first glance, it seems that Philoponus is comparing place with qualities. He often illustrates the ontological state of place with the qualities of a body. Themistius, as we have seen, suggests that the local extension would divide the body or be divided by body. To refute this, Philoponus argues that, just as different bodiless qualities are in bodies without being responsible for any kind of division—exactly because they are bodiless—in the same way a bodiless local extension is possible: it is inappropriate to assume that the bodiless affects the

241 I would like to add that the ‘violence’ of the void turns out to be as important as the replacement of bodies is in Philoponus’ theory. Philoponus holds that the replacement of bodies and the ‘violence’ of the void are the most significant procedures in nature for preventing the actual existence of the empty extension. Philoponus insists on this three times, (in Phys., 575, 32-33; 577, 7-9; 579, 14-15).

242 See Aristotle’s Categories, 1b25-27. Simplicius reports that Andronicus and Archytas arrived at a category of place and a category of time, in which they included the categories Aristotle named as τὸ ποτὲ and τὸ ποῦ, (in Categ., 134, 5-11; 342, 22-25). Ammonius Hermeiou explicitly claims that we have four main categories (substance, quantity, quality, and relativity), from the combination of which the other six categories can be deduced (in Categ., 92, 6-12). The category of where derives from the combination of substance and quantity. The same idea occurs in Philoponus (in Categ., 163, 4-164, 5). Mendell argued that the concept of place in the Categories contradicts the concept of place in the Physics (1987, p. 210cf.). For the opinions held by Ammonius, Philoponus, and Simplicius, see Algra (1995, pp. 137-138, n. 39).

243 Here are the related passages: in Phys., 557, 24-31; 558, 27-31; 559, 14-18; 560, 30- 561, 3; 561, 5-27; 577, 10-16; 578, 5- 579, 18; 632, 4-8; 687, 29- 688, 2; 688, 5-25; 694, 19-27.
body in any way. A three-dimensional bodiless extension (which is the place of bodies) obviously cannot either divide the body or be divided by the body. The analogy between place and qualities proves to be satisfactory, since both relate to body and are bodiless. But it would be misleading, as Philoponus argues, to infer from the fact that place can be compared with qualities either that place is a quality or that it has a quality. Philoponus clearly states that we should not think of place as having a quality (in Phys., 632, 7-8).

The same stands for the local extension and quantity, for instance, length and breadth (in Phys., 558, 27-31). A three-dimensional bodiless extension can certainly be applied to body; otherwise one could not apply quantities such as length to bodies. However, length and breadth are bodiless, and they do not exist beyond body in actuality; the local extension which Philoponus establishes has the same ontological status as these quantities (length, depth, breadth), defined in its own right as bodiless empty dimensions alone. Philoponus asserts that three-dimensionality cannot be a term which defines body; instead, it is an inseparable accident (ἀχώριστον συμβεβηκός), since it belongs to the category of quantity. In brief, the argument runs as follows: body is substance; quantity is accidental to substance; three-dimensionality is a quantity; therefore, three-dimensionality is accidental to substance. So, even if we think of place as a quantity, because it is three-dimensional, we should note that place will still be accidental to natural bodies. This fits perfectly with the idea that place is one of the concomitants (παρακολούθημα) of all natural bodies.

A difficulty, perhaps raised in the classroom, introduces, in the digression on place, the issue of a quantity separated from bodies. Given that the category of quantity (τὸ ποσόν) always appears to be connected to a substance (ἡ οὐσία) and that extensionality belongs to the category of quantity, then the separation of extensionality from bodies would imply the separation of quantity from substance, which is impossible. In fact, a separate, self-subsistent extension cannot exist. The argument seems to be strong enough to refute the assumption of a separate extension. In reply, Philoponus draws our attention to the weakness of our senses and to the relative way in which we build our knowledge about nature. It is true

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244 See in Phys., 557, 24-31. There are many similarities between Philoponus’ treatment and a short treatise on the incorporeality of qualities of Ps.-Galen (I mean the Quod qualitates incorporeae sint, perhaps written by Albinus, Galen’s teacher), which attacks the corporeal universe of the Stoics in different aspects, one of them being the notion of place; the writer examines the absurd consequences deriving from the case of corporeal qualities of bodies with respect to the three dimensions of bodies and their place (Kühl 1821, 19, 471, 16ff.).

245 in Phys., 561, 5-27. I discuss this issue in Chapter 3.1.

246 See, in Phys., 2, 14-16.

247 This difficulty is raised in lines in Phys., 561, 25-27, but discussed much later in lines in Phys., 578, 5-579, 18.

from observation that we always see quantity attributed to a substance. We do not see anywhere in nature a quantity alone. But then, we could also say that substance cannot subsist beyond quantity, quality, and its other attributes, because we always see substance accompanied by a specific quantity, colour, taste, etc. Philoponus’ hypothesis partially reverses the scheme of Aristotle’s categories by hypothetically stating that the substance cannot be self-subsistent.

The idea lurking behind Philoponus’ hypothesis is that our observations of nature do not provide us with any secure reason for accepting the self-subsistence of substances. The Aristotelian scheme of the categories actually suggests combinations of categories to one another. We cannot, by observing any one of the categories alone, adduce that a substance is self-subsistent. It could be claimed that every natural substance needs a determinate quantity for its being. For example, each form of flesh subsists only in a specific quantity. When the quantity perishes, then the form perishes along with it. In this way, for Philoponus, the natural forms may have their being in the quantity (as a substrate). Philoponus, by hypothesizing that substance cannot be self-subsistent, wants to show that the nature of things cannot be refuted by the assumption that quantity cannot subsist in its own right (in Phys., 578, 27-32). Philoponus recommends that we should either demonstrate that such extension does not exist or leave everything as it is. When we study nature, we always have to change our point of view in order to be consistent with nature and not insist on our assumptions, even if the nature of the things differs from what we are able to perceive at the time.

To some extent we have already touched upon the relationship between place and substance. This relationship clearly connects to the differentiation of place from bodies. The local extension is beyond matter and, as a result, beyond substance. Substances are composed of matter and form. Natural bodies are substances composed of matter and form,—for instance, a human being. These substances have three dimensions—i.e., they are extended in length, breadth and depth. In Philoponus’ terminology, substances fill the local extension. The fact that bodies fill the local extension does not mean that we cannot grasp place in its

249 Philoponus characterizes the assumption that quantity cannot be self-subsistent beyond substance as a belief we have a habit of endorsing: «όστε ταύτη σώζοιτ’ ἂν καὶ τὸ δοκοῦν ύμολογημένον εἶναι διὰ τὸν συνεθισμὸν τοῦ συνεχῶς τοῦτο λέγεσθαι, λέγω δὴ τὸ μή ἂν τὸ ποσὸν ὑποστῆναι καθ’ αὐτό ἄνευ οὐσίας», in Phys., 579, 15-17.

250 Philoponus may rely on Aristotle, who said in Physics I that it is impossible for any form to subsist in any randomly given magnitude (see Physics, 187b13-21; in Phys., 578, 19-20). I have some doubts about Philoponus’ accurate memory here; it seems to me that Philoponus’ text does not correspond to Aristotle’s text.

251 I quote Philoponus’ view: ‘So I say that what is most of all necessary is not for the nature of things to follow our own accounts, but for our own agreed assumptions to be consistent with the things. There is no necessity for the nature of things to be like this, just because we have determined that it is impossible for some quantity to subsist without substance’, in Phys., 578, 11-15.
own right. If place is a three-dimensional extension and it belongs to the category of quantity, we still think of it as being different from the bodily extension that fills it. But to stand beyond substance does not necessarily imply an ontological independence: place cannot exist in its own right deprived of bodies. The essential difference between two kinds of extension, the local and the bodily extension, remains the cornerstone of Philoponus’ account. Philoponus is aware of the fact that an extension independent in any way in nature would create some serious complications. But the local extension should be distinguished from substances, even though we cannot observe an empty bodiless extension. 252 In that sense, place in its own right does not perish when a body does. The decay of a body does not affect the local extension, for another body comes to fill its position within the local extension.

To summarize, the analogy between place and qualities, the reflections on local extension and quantity, and the clear distinction between place and substance are all collected here in order to complete Philoponus’ views regarding place as ontologically different from body. According to Philoponus’ account, the sensible aspect of local extension suggests that we never take notice of a separated extension. But he also sets forth the conceptual aspect of τόπος, understanding the local extension as separated from bodies, contrary to our observations. The latter aspect of place emphasizes its ontological difference from the bodily extension. Both aspects of place, according to Philoponus, if they do not illustrate the truth about the nature of the universe, at least come a step closer to what we perceive in nature.

This whole chapter has examined the various arguments used by Philoponus to claim that place is ontologically different (ἕτερος) from bodies. The whole treatment of the subject in the digression of place clearly suggests that Philoponus conceived of place in two senses in order to explain the nature of place and to make a truthful statement about nature. Both aspects also appear in the digression on the void, where Philoponus explicitly claims that the motion of bodies through the void is possible and thus, in a sense, redefines locomotion with respect to his definition of place, as we shall now proceed to show.

252 The analogy is between place and matter, but also between place and the unqualified body: if and inasmuch as the unqualified body can be self-subsistent, in the same way as we can think of the local extension being self-subsistent («εἰ καὶ ὅσον ἐφ’ ἑαυτῷ ἠδύνατο ὑποστῆναι ἂν καθ’ αὐτό», in Phys., 579, 3-7).
CHAPTER 4 The Voided Place

The digression on the void, which Philoponus places within the running commentary on *Physics* IV, 6-9, notoriously establishes an account that permits the ‘presence’ of the void in nature. The digression on place, on the one hand, deals with understanding the local extension in its own right, as something different from the bodies within it (conceptual aspect) and on the other hand, as the place of those bodies (sensible aspect). The very same distinction is also traced in the digression on the void, in which Philoponus additionally attempts to correct Aristotle’s theory of the motion of bodies, introducing a theory of voided place compatible with the motion of bodies. The general opinion nowadays regarding the digression on the void is that the digression undermines Aristotle’s denial of the void’s existence; I suggest, by contrast, that the digression further exculpates, so to speak, the concept of the void. Philoponus approaches the void as part of the natural procedures, such as the replacement of bodies and their motion. The present chapter centres on the question: how does Philoponus go about introducing a conception of void that is compatible with the nature of the universe? The digression on the void is congruent with his theory of the local extension; so, while reading it, we should always be mindful of the principles set out in the digression on place. To put it differently, I read both digressions plus the corollary on the motion of the projectiles (*in Phys.*, 639, 3-642, 26) as a coherent theory of place and as a theory of the motion of natural bodies. The first subject discussed in this chapter is the fundamental concept of πλήρωσις, which is a prerequisite for our understanding of the way bodies occupy place. Second, I examine Philoponus’ definition of place as void. The last two sections of the chapter are devoted to the motion of bodies through the void and especially to the relationship between void and locomotion in Philoponus’ account.

253 Some excerpts from Philoponus’ commentary support the view that the digression on the void connects with the digression on place and the corollary on the motion of projectiles: *in Phys.*, 675, 15-16; 675, 29-676, 1; 687, 14-19; 688, 31-34; 689, 6-7; 689, 14-16; 694, 16-27. In these texts, the arguments of all three sections of the commentary produce one single theory on place and motion.
4.1 The concept of plērōsis

One of the essential features of Philoponus’ account of place is the concept of «πλήρωσις»—i.e., ‘filling up’. We have already touched upon this issue several times in the previous chapters. At the beginning of the digression on place, Philoponus focuses on the objections held by the Peripatetic tradition to some extension-theories. These theories seem to imply absurd consequences in their explanations of how a body comes to be in the extension (place). Philoponus therefore introduces the concept of ‘filling up’ in order to establish a sound theory of local extension. To do so, he uses Aristotle to justify the introduction of such a concept and at the same time to avoid the problems ascribed to other theories by the Aristotelian tradition.

Philoponus introduces the concept of πλήρωσις through the example of nourishment, which appears in Aristotle’s Physics as well as in On generation and corruption. According to Philoponus, Aristotle gave a very good reply to those (for instance, Empedocles and Leukippus) who claimed that growth (ἡ αὔξησις) happens through the entrance of food into the voids or pores contained in the bodies: from the supposition that food enters the body through the voids or pores, it follows either that the body is entirely void, if it grows as a whole through a whole, or that there is no growth but only a filling up of the voids or pores. Aristotle seems to claim, Philoponus concludes, that in this sense the greatest might be in the least (Phys., 213b7-12). Philoponus takes up this point to suggest that, in the same way, those who claim that place is an extension (should) endorse the position that when the body passes through the void, it fills it.

The concept of «πλήρωσις» substitutes, as it stems from Philoponus’ usage, for the Stoic’s troublesome concept of «χώρησις δι’ ἀλλήλων» (‘passing through each other’). The

254 in Phys., 557, 8-559, 27.
255 Vitelli points out that Philoponus refers to Physics, 214b5-9. I believe, however, that Philoponus also has in mind Physics, 213b18-20. The following passages from the De generatione et corruptione are of great assistance too: 321a5-9; 321a29-32; 321b10-16. The term «(ἀνα)πλήρωσις» occurs especially in the De gen. et corr., 326b6-28.
256 Philoponus says: «ἡ ἀναπλήρωσιν εἶναι μόνον τῶν κενῶν, οὐκ αὔξησιν», in Phys., 560, 1-2. It is striking that Philoponus draws attention to the concept of πλήρωσις via Aristotle. However, we should note that Plato in the Timaeus also describes a filling of extensions (Timaeus, 35A2-36B5).
257 Philoponus’ text goes as follows: ‘So, in the same way, those who say place is the extension could maintain that the body passing through the void fills it, and neither is the void divided by the body that comes to be in it nor does the void divide the body, but it (i.e., the void) is only filled; nor is it the void that comes to be in the body, but rather the body is the one that comes to be in it. [...] Because place is an extension void in its own definition, it will only be filled by the body that comes to be in it,’ in Phys., 560, 3-7; 560, 10-11. Other occurrences of the term may be found in several passages of the commentary: See in Phys., 557, 21; 560, 3-15; 562, 6-563, 2; 577, 25-578, 4; 592, 29-32; 598, 24-30; 624, 26-625, 9; 675, 23-29; 681, 15-17; 682, 18-19; 684, 13-685, 23; 686, 30-687, 35; 689, 14-20; 694, 19-27.
258 See in Phys., 559, 19-560, 15.
latter, according to Alexander of Aphrodisias, was a concept used by the Stoic philosopher Chrysippus and his circle; it describes the process by which bodies mix. According to Chrysippus, some bodies can entirely pass through other bodies and yet still keep their qualities and proper substance. Alexander points out that the «χώρησις δι’ ἄλληλων» goes against every common observation, such as that a full body (τὸ πλῆρες) cannot pass through another full body. So, one of the bodies either must be void or must contain pores that are void. But then the question is: how do the pores receive another body? The only possible way for this to happen is if the entire body is an empty pore.

Philoponus is aware that (three-dimensional) extensionality in the Peripatetic tradition remains attached to corporeality. For this reason, he shows that the relationship between the local and the corporeal extension is not of the same kind as the one between different (three-dimensional) corporeal extensions. But how are bodies in place? The proponents of the extension-view could, Philoponus holds, just assert that the void is filled by the bodies. For the void does not occupy or come to be in bodies, but rather the other way round: namely, the body becomes the occupant of the void. The principle of «πλήρωσις» derives from the definition of the local extension. Place is void in its own definition (τῷ ἰδίῳ λόγῳ). Since place is void, we cannot speak of bodies ‘passing through each other’ (χώρησις δι’ ἄλληλων), but of bodies filling (πλήρωσις) something empty. Furthermore, the void cannot undergo any motion. The immobility of place should be understood in accordance with the principle of «πλήρωσις», for it is always place that is filled by moving bodies and not vice versa. Place is an extension which cannot undergo motion as bodily extensions do. These are some intrinsic differences between place and body which, according to Philoponus’ theory, determine the way we should conceive of bodies being in a place. Having discussed the concept of πλήρωσις, we can now turn to the details of Philoponus’ definition of place as void.

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259 See Alexander of Aphrodisias, De mixtione, 213, 6-13; Rashed 2011, p. 176, fr. 8; Simplicius, in Phys., 530, 9-14.
260 Alexander provides an overview of Chrysippus’ account of mixture (De mixtione, 216, 14-218, 10) and then rejects it (De mixtione, 218, 10-221, 25).
261 Philoponus wants to differentiate his position from the Stoic view of mixture, especially that attributed to Chrysippus. On the attack against the Stoic theory of interpenetrating extensions, see also Alexander, De mixtione, 233, 14cf; Themistius, in Phys. paraphr., 113, 7-116, 9.
262 Aristotle argues in favour of the immobility of place in the Physics, but Philoponus repudiates the Aristotelian doctrine of place’s immobility, precisely because Aristotle defines place as the limit of the surrounding body (see the criticism in Chapters 5.2, 5.3).
4.2 The definition of place as a voided extension

Philoponus' definition of place involves the concept of the void, since place is a bodiless, three-dimensional, voided extension. However, we should be cautious about discussing the void in Philoponus. The word «τὸ κενὸν» often means ‘empty’ in the sense that we use it in everyday life—for instance, a glass empty of water or any other body. But, for Philoponus, the word basically connotes the extension which is the place of bodies. Right from the beginning of the digression on place the concept of τὸ κενὸν appears to designate the same thing as the concept of ὁ τόπος. Philoponus considers a conception of place to make necessary the notion of an empty space. Two requirements, it seems to me, are the keynotes of Philoponus' definition of place: (a) three-dimensionality and (b) voidness. The constituent role of the void in the definition of place can be seen in the following two passages, taken from the digression on place.


T2. «[…] ὅτι δὲ διάστημα τὸ ὅτι τριχῇ διαστάτων ἔτερον τῶν σωμάτων ἐν τῷ ἐμπιπτόντων εἰς αὐτὸν ἀσώματον ὅτι τὸ ὀικεῖο χάριν καὶ διαστάσεις μόνας κεναί σώματος (παρ᾽ ὅτι ὅτι τὸ κενὸν καὶ ὁ τόπος κατὰ τὸ ὑποκείμενον), δειχθεὶς ἀν καὶ ἐκ τῆς ὁμολογίας, ἔκ τῆς αὐτοῦ ἐναρέσεως», in Phys., 567, 30-33.

It is obvious that whether I say ‘void’ or ‘three-dimensional local extension’, I say the same thing.

[…] that there is a kind of extension that is three-dimensional, different from the bodies that come to be in it, bodiless in its own definition and extensions alone, emptied of bodies (for the void and the place are actually identical in substrate), will be shown by the refutation of the remaining arguments.

263 See in Phys., 579, 7-9. See also Aristotle, Physics, 213b30-34; Themistius, in Phys. parapr., 125, 28-126, 3. Algra (1995, pp. 39-40) distinguishes between three basic conceptions of the term «τὸ κενὸν» in the philosophical discussions of antiquity: 1) space, 2) empty space or empty place, 3) an empty thing or an empty part of a thing. According to Algra’s distinction, (2) and (3) do not necessarily correspond to two different conceptions of space; it seems to me that Philoponus uses the term to denote either space (1) or empty space/empty thing (2&3).

264 In Philoponus’ words [my italics]: ‘Because they assume that place is not a body (for to say ‘three-dimensional’ is not the same thing as to say ‘body’) but bodiless (for it is voided in its own definition) […]’, in Phys., 557, 17-19. This text refers to Themistius’ criticism of the extension-theory of the Atomists and the Stoics (in Phys. parapr., 113, 7-11; 116, 29-32; 123, 15-22). Nonetheless, Philoponus uses the term ‘void’ to proclaim his definition of place.

265 Philoponus says: «χώρα κενὴ», in Phys., 557, 31. In the Hellenistic period of philosophy the word «χώρα» was already used interchangeably with «τόπος». For instance, Epicurus (Epist. Herod., 39-40; Sextus Empiricus, Adv. Math., 10, 2) and the Stoics (Aëtius, I, 20, 1 (Diels, 1879); Sextus Empiricus, Adv. Math., 10, 3-4) used both terms, plus the term «τὸ κενὸν», to describe three different instances of the same thing: a larger undetermined place (χώρα), the place of a specific body (τόπος), and a place empty of body (κενὸν). As we shall see, Philoponus tends to use all three interchangeably and coextensively—the only difference being that ‘void’ is several times used literally, meaning something empty. Generally, there is a tendency in antiquity to use χώρα and τόπος in different contexts, which in English are often distinguished by the words ‘space’ and ‘place’ respectively (See Algra 1995, pp. 33-38). Philoponus’ use of the term «χώρα» in the commentary on the Physics may simply echo the Platonic doctrine of the receptacle (χώρα, ὑποδοχὴ) of the Timaeus (49A1-6; 50B5-D3; 52A8-B5).
Both texts emphatically express the identification of place with the void. Text 1 conveys the idea of conceptually identifying the void with the place of bodies. The notion of place and that of the void are coextensive. Glancing at the digression on place, the identification of place with the void can be grasped through the conceptual aspect of local extension, namely that of being deprived of bodies. Philoponus often uses the words ‘void’ and ‘place’ interchangeably. Then why do we need the notion of the void, if ‘place’ sufficiently denotes that a body is somewhere? In Aristotle’s words, the void cannot exist in nature exactly because place is always occupied by natural bodies. Aristotle further signals the impossibility of void’s existence by arguing that the bodily extension would be identical to the voided local extension, which implies the possibility of many extensions at the same spot. Themistius takes up the last point, claiming that the existence of the void is unnecessary—he characterizes it as pointless. Philoponus’ own statement that a separate extension cannot exist in actuality can also, in fact, be used against his doctrine of the voided place. Why does he need to speak of the void?

Even though the above objection seems inescapable, still Philoponus thinks of the void as one of the necessary conditions for us to speak of the natural place of bodies. He devotes a long section of the digression on the void to grounding his view in safe arguments. The objections expressed by Aristotle and Themistius depend on an assumption that identifies extensionality with body. We saw that Philoponus introduces a kind of local extension that differs from the bodies. According to his doctrine, if you take away every quality a body has, you still do not get voided place; what remains is matter and unqualified body (which consists of matter and the form of quantity). But the void does not consist of matter and form: the void is bodiless and immaterial. Philoponus considers a plausible objection which says that if we take away the bodiless matter from the body, we see that the

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266 See *Phys.*, 559, 17-18; 562, 28; 563, 5-15; 569, 6-9; 577, 4-9; 577, 14-16; 579, 6-10; 583, 6-8. Note that Philoponus points out (*Phys.*, 573, 11-13) the identification of place with void in Aristotle’s *Physics* (214b23-24).
267 See *Phys.*, 214a16-19; 216a26-b21.
268 Themistius calls the void «μάταιον», *Phys. paraphr.*, 134, 33-135, 1; 137, 16-23.
269 Sedley (1987, p. 141) deals with the same question. In another article, Sedley (2002, p. 367) argues that Epicurus’ conception of place faces a crucial difficulty: ‘He is failing to maintain a distinction between full and empty space’. How would Philoponus confront this difficulty?
270 The third part of the digression, (*Phys.*, 686, 30-689, 25).
271 See *Phys.*, 687, 29cf. A similar argument was discussed in the digression on place (*Phys.*, 557, 17-18; 559, 9-14; 561, 5-24).
void is identical to the matter of that body. However, he refuses to admit the identification between body and the void (place). To take away the matter of a body means that the body does not exist anymore; nothing like a natural body that needs place remains. It makes no sense to identify the void with the bodiless matter of a non-existing body. The void can still be something else in its own right, even if we take away a natural body in any sense. Needless to say, there is no reason to assume that more than two extensions (i.e., the body and the local extension) can ever apply to each other.

Attaching the concept of voided extension to body suggests that the void is unnecessary, since bodies always fill place. However, Philoponus makes clear the essential difference between bodily extension and the void. The concept of the void serves to define the local extension and explains, at the same time, how bodies come to fill the local extension and how they exchange positions within it. The void, according to Philoponus, plays an important role in the replacement of bodies and in their motion, as we shall see. He considers it pointless to refute the nature of the things, accusing the enemies of the extension-theory of establishing theories incompatible with the true nature of the cosmos. It is perfectly legitimate, in Philoponus’ view, to refute the existence of something when we understand its causes or when we can go through the difficulties of the subject; but the opposite is absurd. Since we are unable to understand the nature of the things, we must learn how to acquire knowledge of their nature. So, the definition of place as void cannot be pointless, because it has a role in the locomotion and replacement of bodies.

Text 1 suggests that the terms ‘place’ and ‘void’ are co-extensive. It asserts that saying ‘the table fills the three-dimensional local extension’ is exactly the same as saying ‘the table fills the void’. Text 2 maintains that ‘the void and the place actually are identical in substrate’. On the one hand, it is the same thing to say ‘void’ and to say ‘place’, and, on the other hand, place and void actually are identical in substrate—i.e., ontologically are one and the same thing.

Furley translates the Greek expression «κατὰ τὸ ὑποκείμενον» as ‘in

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272 See in Phys., 687, 29-688, 5. It is not certain whom Philoponus had in mind. The objection strongly resembles Physics, 214a13-16.

273 See in Phys., 687, 19-22. Philoponus challenges his opponents to refute his theory or otherwise remain silent: ‘If the arguments are true, it is actually pointless to refute the reality either because of an inability to explain the causes for its existence or because it is impossible to solve the apparent difficulties dealing with the account of it; it is as if someone were to refute the existence of an animal part because he was incapable of explaining its cause,’ in Phys., 687, 23-27. Earlier he claims the same in a similarly provocative manner; see in Phys., 578, 28-32.

274 I quote again my translation: ‘[… ] that there is a kind of extension that is three-dimensional, different from the bodies that come to be in it, bodiless in its own definition and extensions alone, emptied of bodies (for the void and the place actually are identical in substrate), will be shown by the refutation of the remaining arguments,’ in Phys., 567, 30-33.
substance’, noting that the word ‘substance’ here does not mean that Philoponus believes that either place or void are substances (οὐσίαι); he then adds that ‘they (i.e., place and void) differ only in their accidental properties’. It is not clear to me what Furley means either by ‘accidental properties’ or by the comment that place and void ‘differ’. To begin with, I believe that Philoponus draws a connection between place and void, not a distinction. According to text 2, place and void actually are identical in substrate, so we should ask what ‘in substrate’ means. I think that text 2 helps us to comprehend the meaning of the expression. If place and void share the same substrate, then both should be extended in three dimensions. Apart from that, they should be bodiless and ontologically different from the bodies that come to be in them; that is to say, they should be immaterial, unaffected, and separate from all substance. To be ‘identical in substrate’ means that place and void are bodiless, immaterial, separate from substance, and three-dimensional.

Text 2, according to this interpretation, only asserts that place and void are identical in every aspect—namely, they share common characteristics. Place is dimensions alone, emptied of bodies; it actually is the void. Furley’s comment that ‘they differ only in their accidental properties’ has no basis in the text. In addition, it does not fit Philoponus’ doctrine, since we cannot attribute different accidental properties to place and the void. The only way I can think of to explain how place could have accidental properties is the following. The specific three dimensions of the bottle of wine (that now stands on the table in front of me) could be an accidental property of the local extension filled by this bottle of wine. The local extension must be equal to the dimensions of the bottle of wine filling it. But the fact that place of the bottle necessarily has the specific three dimensions of this bottle of wine—i.e. the bottle’s place has the same extent that the bottle does—would be the only sense in which place could have an accidental property (namely, the three dimensions of the bottle, whatever they might be).

But the claim that place and void ‘differ only in their accidental properties’ is confusing. If the local extension is of the same nature as void, then the local extension that the bottle of wine fills right now actually is the void that the bottle fills right now. In other words, how does the place of that bottle of wine differ from void with respect to their extensionality? Furley’s assumption implies that we have two different and distinct things—namely, place and void; and, moreover, it suggests that the universe consists of bodies and extensions of equal number, for if the place of the bottle of wine differs in its accidental

275 Furley 1991, p. 28, n. 22.
property from the place I occupy, then we must accept a number of extensions equal to the number of bodies in the universe. But there are no indications in Philoponus’ theory to affirm such a claim. The cosmic local extension itself is unified, but it is filled by different bodies each time. We pinpoint parts of that extension because of the bodies’ presence; we try to determine the specific position that a particular body fills right now in connection to other bodies around it within the local extension. The position I fill within the local extension certainly differs from the position filled by the bottle of wine with regard to the accidental property of our bodies’ extensionality; but the different positions are not of different kinds each time, nor do place and void differ in their accidental property of extensionality, since they are identical.

Although it is verbally odd, we assume the void’s presence in nature, in the sense that it is the extension which bodies fill. It would be impossible for a body to fill something already filled or to fill a body. Reasonably, according to Philoponus, we need the voided local extension; otherwise, we have to deal with many absurdities (for example, two bodies at the same spot). Beyond doubt, Philoponus does not fail to distinguish between full and empty space. He defines place as void in its own right, highlighting its conceptual aspect, and distinguishes void itself from its sensible aspect, which is place always filled by bodies. The Peripatetic tradition’s denial of void’s existence and Philoponus’ insertion of the concept of void into the definition of place forced him to suggest a solution for several problems concerning the void, the most crucial being the motion of bodies through it, with which the next section deals.

4.3 Natural bodies moving through void
The digression on the void consists of six parts and is placed in the middle of the running commentary on the Physics IV, 9, which extends over two lectures. Aristotle criticizes the position that the void is a separate extension and argues against the possibility of motion

277 Returning to Sedley’s (2002, p. 367) difficulty deriving from the Epicurean conception of place, I would say that, conceptually speaking, Philoponus may very well distinguish between full and empty space.
278 At the same time, Philoponus solves a problem by which Epicurus was troubled. Epicurus claims that the universe consists of body and void (Epist. Herod., 39-40). For Epicurus, as well as for Philoponus, the place of bodies is something we can call ‘void’ and plays a decisive role in the motion of bodies: the existence of the void is necessary for locomotion. Philoponus’ theory solves the difficulty that arises from Epicurus’ theory: if there can be void in actuality as an empty space, where exactly is it? Philoponus does not claim that the void, as a completely empty space, can exist in actuality because of the so-called ‘violence’ of the void and the fact that bodies always fill the void.
Philoponus starts by criticising the Aristotelian arguments which deny the possibility of motion through void, especially the arguments concerning the unequal speed of bodies, corresponding to *Physics* 215a24-216a21.279 The principal aim of the digression on the void is twofold: first, to correct the Aristotelian doctrine that excludes the possibility that the void exists in any sense; second, to establish the view that motion through the void is possible.280 Here I concentrate on the relationship between the void and the full (τὸ πλῆρες), from which Philoponus builds up his arguments concerning the motion of the bodies through the void.

It appears that Aristotle and the Peripatetic tradition treated the void as one of the most controversial concepts in physics, because its nature did not seem to fit in with the natural cosmos. The mysterious void, in antiquity and later on, represents the fallacy that a non-being occurs in nature; some people tend to believe that the void—perceivable or not—must be there and, strangely enough, this assumption presupposes our ability to perceive that a body is somewhere. If we can think of ‘somewhere’, then we can also think of ‘nowhere’. But ‘nowhere’ signifies a non-being, something that can never occur in actuality. It is true to say that some of the problems Aristotle discusses in *Physics* IV, 6-9 start from common observation(s), from which he builds some elaborate arguments denying the existence of the void. Nonetheless, philosophers of antiquity, late antiquity, and the Middle Ages, and, later, physicists up to the 20th century tried to restate arguments providing *mutatis mutandis* a theory of the existence of the void.281 Philoponus opts for a theory that allows the ‘presence’ of the void without committing himself to the complications that Aristotle and his adherents have pointed out.

Aristotle posits a distinction between natural and forced motion. In natural motion we can observe *differentiae* because the natural motion of the elements (and, by implication, of all bodies, since all bodies are composed of the four elements) requires that heavy elements and bodies move downwards and light elements and bodies move upwards, namely each one towards its natural place. In a void condition, Aristotle believes, we are unable to distinguish

280 The beginning of the digression informs us about Philoponus’ exact intentions (in Phys., 675, 26-676, 2): ‘My objection is to the arguments of Aristotle, who tried to show that if void existed, nothing would move through it, and that, even if there is no void in any way separated from bodies, instead there is the void that is filled, which is also the place of bodies, as we proved in the previous arguments. Now we will again show that the arguments refuting it are not cogent, although they persuade with their plausibleness.’
281 Aristotle’s rejection of the idea that motion through void is impossible, especially, survives for a long time. Discussions on the issue continue from Philoponus to Averroes, Avempace, St. Thomas Aquinas, Nicholas Bonetus, Jean Buridan, Hasdai Crescas, Albert of Saxony, Franciscus Toletus, Franciscus Suarez, Francesco Patrizi, René Descartes, Galileo, and Isaac Newton. See Grant (1964); Grant (1965).
between ‘up’ and ‘down’, and, as a result, a body will necessarily be at rest. Any kind of natural motion in any direction seems impossible because the void is undifferentiated; but natural motions are differentiated.282

The problem of the motion of bodies through the void can be regarded as a problem of the relationship between the void and the full (τὸ πλῆρες). The extension-theory proposed by Philoponus needs to re-establish this relationship. Aristotle objects to theories which establish the concept of the void and counters them by showing that the void has no proportion (λόγος) to the full. Motion through void suggests that bodies (even if they are of different shapes and weights) will still move with equal speed.283 Philoponus devotes a long section of the digression to the refutation of Aristotle’s arguments. As we shall see, he rejects Aristotle’s thesis, which presupposes the arguments on unequal speeds of bodies, that we should look for any proportion that exists between the void and the full. Philoponus introduces three arguments, which are jointly demonstrated.284

The first argument (in Phys., 677, 9-680, 23) goes against Aristotle’s thesis that different bodies will move at equal speed through void. Aristotle establishes two causes of unequally rapid motions: (i) the differences between bodies (for example, their natural impulses) and (ii) the differences of the mediums through which the bodies move—for instance, water or air (Physics, 215a25-29). Philoponus’ first argument deals with the first case. According to Philoponus, if two bodies of different weights are moving through the same medium, which happens to be void, nothing forces these bodies to move at equal speeds. The heavy body will move faster than the light body, and the same will happen if we replace the void with air: the heavy body will still move faster than the light body through the air. Hence, the question of the cause of unequal speed remains. The medium through which bodies move cannot be the cause of unequal speed of the bodies in this case.285 If the medium is not the cause, then the cause relates to the body. Philoponus says that bodies move with unequal speeds because there are different moving causes in them (αἱ κινητικαὶ αἴτιαι). He stresses the evident contradiction in Aristotle’s argument, which derives from his denial of that bodies are differentiated even though their differentiations can still cause unequal speed.

Indeed, Philoponus suggests that the cause of unequal motion, in the case of two bodies moving through the void, is the heaviness (ἡ βαρύτης) of the bodies, the efficient cause of their motion downward (τὸ ποιητικὸν αἴτιον). The natural impulses of bodies, which

284 «τὸ συναποδεδειγμένον» is the term used by Philoponus, in Phys., 680, 27; 684, 10.
285 «καὶ ψεῦδος προφανῶς ὀν ἐλέγχεται», in Phys., 678, 4-5.
are responsible for their natural motions towards their natural places, do not cease to exist when the bodies move through a corporeal medium, for instance water or air. Heaviness is a quality of bodies. Qualities do not depend on bodies for their existence, in the sense that blackness can exist even if a black swan does not exist. In Philoponus’ words: ‘Its being colour does not belong to it by virtue of something else, but rather by virtue of itself’, (in Phys., 679, 26-27). Accordingly, the existence of heaviness does not depend on the body, and it must be active even when the body moves through the void. As a result, when two bodies differ in respect of their heaviness and the medium through which they move is the void, nothing prevents unequal speeds from occurring, since each body bears its own natural impulse. Thus, one body can move faster than the other, and bodies moving through the void will not necessarily move at equally rapid motions.

The first argument forces us to see how the Aristotelian doctrine, which claims that motion through void could produce the absurd consequence of equally rapid motions, might bear some internal contradictions. Philoponus shows that Aristotle, on the one hand, accepts that differentiated bodies might cause unequally rapid motion, but, on the other hand, misses the point: for, even if the void itself is not the cause, still bodies in the void possess their own natural impulses and can move either fast or slow depending on their impulses.

The second argument (in Phys., 680, 24-684, 10) suggests that motion through void consumes time. Aristotle maintains, in a perplexing argument (Phys., 215b22- 216a11), that traversing the full and the void in equal times is impossible, since the hypothesis that bodies traverse the void in time is absurd. He assumes an analogy between the proportion (λόγος) that a body has to another body and the proportion the time of motion has to another time (of motion). Motion has a proportion to motion, and, because motion happens in time, the time has a proportion to time; but that the full should have a proportion to the void is out of the question.

Having proved that the ‘fast’ and the ‘slow’ occur in the motion through the void, Philoponus infers that this motion necessarily happens in time. The ‘fast’ and the ‘slow’ are distinguished with respect to time. Motion in the void consumes time because of the different natural impulses of bodies (in Phys., 680, 28-681, 1). This is another way to show that bodies traverse the void in time and that they do not necessarily take an equal time to traverse the same distance through the full and through the void. The analogy of proportions between motions, times, and mediums can also be shown to be false in a different way. If we accept

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the analogy of proportions in the case of two different bodies moving through one and the same medium, the result will be that the proportion of impulses will be analogous to the proportion of times of motions; and the proportion of the moving bodies will be analogous to the proportion of their motion times. Philoponus seems to be pointing out here a fallacy of a regress of proportions, which makes no sense.287

The whole argument includes one of Philoponus’ most fascinating examples, which he uses against Aristotle and the Peripatetics. If two weights of very different amounts are dropped from the same height, the proportion of the times of their motions will be analogous to the proportion of their weights; we will observe, however, that the difference between the times of their motion will be much less than the difference of their weights. Assume that one weighs half as much as the other. If we drop these weights from the same height, we will see that the times they take to fall the same distance will not differ; or, if they differ, it will be by an almost imperceptible amount of time, even though the ratio of their weights is considerable, one being double the weight of the other.288 To conclude, Philoponus states that in cases where different bodies move through the same medium, the ratio of the moving bodies will not be the same as the ratio which the times of their motion have; consequently, the ratio of the medium (if any) will also not be the same as the ratio the bodies have or the ratio the times of their motions have.

Hence, we should keep in mind two things: first, the natural impulses of the bodies make them take unequal times when moving either through the air or through the void; and, second, that the proportion (if any) of the mediums cannot be the same as the proportion that the bodies have, or of the times of their motions, because natural impulses differentiate bodies from each other.

Philoponus’ third argument (in Phys., 684, 10-686, 29) is demonstrated jointly with the preceding one. Aristotle suggests that those who accept the existence of the void establish

287 Philoponus argues that there is no need to go through the analogy of proportions at all (in Phys., 683, 7-17). However, his response appears without any demonstrative argument, maybe because he believes that he is just stating the obvious from observations of the natural cosmos (ἐκ τῆς ἐναργείας).
288 I quote Philoponus’ argument, which in modern physics is known as ‘the law of fall’: «καὶ τοῦτο ἐστὶ πιστῶσασθαι κρείττον πάσης διὰ λόγων ἀποδείξεως ἐξ αὐτῆς τῆς ἐναργείας, πολλῷ γὰρ πάνω μέτρῳ διαφέροντα ἄλληλον δύο βάρη ἀμφι ἄρθος ἀκόμη ἐκ τοῦ αὐτοῦ ὕψους ὅτι οὐχ ἔσται τῇ ἁναλογίᾳ τῶν βαρῶν ἡ ἁναλογία τοῦ χρόνου τῶν κινήσεων, ἀλλὰ πάνω ἑλαχίστης τις ἡ διαφορὰ κατὰ τοὺς χρόνους γίνεται, ὡς εἰ μὴ πολλῷ πάνω μέτρῳ διαφέροντα ἄλληλον τὶ βάρη, ἄλλη ὅπου τὸ μὲν διπλάσιον ἐπὶ τὸ δὲ ἡμιός, οὕτω διαφορὰν τινα σχήσουσιν οἱ χρόνοι τῶν κινήσεων, ἢ, εἰ καὶ σχήσουσιν, οὐκ ἀοιδήθην ἔξους, κατὰ τοὺς βαρῶν οὐ τοιαύτην ἐχόντων τὴν διαφορὰν, ἄλλη διαπλασία λόγω ἐχόντος τοῦ ἑτέρου πρὸς τὸ ἑτέρον, in Phys., 683, 17-25. Grant (1965, pp. 80-81) underlines the impact of Philoponus’ argument on Galileo’s views on motion and on ‘the law of fall’ in the De motu by pointing out the respects in which the two arguments differ. On Philoponus’ law of fall, see Grant (1965, pp. 84-88).
a proportion between the void and the full, which is absurd.\textsuperscript{289} He ascribes to his opponents a view which is a consequence of assuming a proportion between the void and the full, deriving from the proportions between moving bodies, the proportions of the speed of their motions and their times and, ultimately, the proportion between the mediums (for instance, void and air). For Aristotle, the void never could have a proportion to the full; the proponents of the void, however, are forced to assume that it does because they think that the void exists. To that effect, Aristotle posits the essential question: how can something empty have any kind of proportion to the full?\textsuperscript{290} Let us see how Philoponus replies to this kind of objection. His argument has a bizarre form, which may confuse the reader because, initially, he partly accepts one of the theses Aristotle endorses, but for different reasons than Aristotle’s (\textit{in Phys.}, 684, 17-685, 23). Philoponus’ argument implies that Aristotle unreasonably assumes that the void, if it exists, must have a proportion to the full. We are provided with a set of conditions which show that it is impossible for the void to have a proportion to the full, on grounds of consistency (\textit{kατὰ τὴν σύστασιν}). Philoponus’ argument may be schematically presented as follows (\textit{in Phys.}, 684, 19-32):

1. There are two causes of difference in motion (\textit{τῆς διαφόρου κινήσεως}): the medium and the bodies.
2. The medium is the hindering cause (\textit{αἴτιον ἐμποδιστικὸν}) of the time of motion; it hinders by virtue of the consistency of its corporeality, which requires time to be parted.
3. When the medium through which the motion occurs is the void, time is consumed because every motion occurs in time—otherwise, the moving body would be at both edges of the distance at the same time; but the time is of this or that length by virtue of the impulse each body itself has.
4. Bodies do not consume time at all by virtue of the void \textit{qua} void as they do by virtue of a body when they move through a body, for, generally, the void has no corporeal consistency; so there is no need for division, but the void lies under the moving body as a bodiless extension and space (\textit{χώρα}) that does not hinder the whole.

\textsuperscript{289} See, \textit{Phys.}, 215a24- 216a21. Aristotle says: «\textit{κενοῦ δὲ πρὸς πλῆρες οὐκ ἔστιν} (e.g. \textit{λόγος}), \textit{Phys.}, 216a8-11. Themistius elaborates this idea, providing the syllogism of the proponents of the void (\textit{in Phys. paraphr.}, 132, 6-14). Philoponus refutes exactly this argument of Themistius’.

\textsuperscript{290} Themistius complies with Aristotle by noting several absurdities in theories such as Democritus’ and Epicurus’ (\textit{in Phys. paraphr.}, 130, 18-133, 14).
5. If time is consumed during the motion by virtue of the corporeal consistency of the medium, and if time is not consumed by virtue of the void \textit{qua} void, then, given the absence of compared times—i.e. the time through the void and the time through the body—we can neither compare the void with the full nor say that the void has any proportion to it.

The core of the argument draws on the distinction between the two causes of unequally rapid motions, namely the different moving bodies and the different mediums through which they move. If the void had any proportion to the full, then we would certainly have to commit ourselves to examining the case in which the medium is always the cause of unequally rapid motion. But Philoponus replies that the void cannot be the cause of unequally speeds, even if it is the medium through which the body is moving. As a consequence, the case of a body moving through the void suggests that the natural impulse causes the unequally rapid motion and not the medium. The lack of natural impulses would suggest that the body is at both limits of the distance at the same time, which is absurd. Motion through the void occurs in time because motion always occurs in time, as Aristotle notes, but, furthermore, because the bodies have their own natural impulses. For only two things cause time to be consumed when a body moves, namely the corporeal consistency of the medium and the natural impulse. Philoponus’ argument maintains that we are speaking of two different cases, in which the respective causes of unequally rapid motion are different. We are not comparing two cases in both of which the mediums (air and void) cause the different times a motion may have. Instead, when the void is the medium, the cause of unequally rapid motion will only be the natural impulse of the body. It is unreasonable to assume that the existent void produces a proportion of the void to the full; it is futile to compare times through the full and times through the void because the reason they are different is that they have different kinds of causes.

Aristotle concludes, according to Philoponus’ interpretation, that the proponents of void’s existence assert that the void has a proportion to the full on the basis that the times of motion have a proportion to one another. But Aristotle argues against them that, on the one hand, in the case of motion through body \textit{qua} body (namely a medium), some time is added, but, on the other hand, in the case of motion through void \textit{qua} void, no time is added. So Aristotle thought that the times of motion through the void and through the full necessarily could not have any proportion to one another; hence, the void cannot have any proportion to the full. However, Philoponus claims that Aristotle missed a critical point: we can think of a
proportion between the void and the full with respect to their extensionality alone. The void and the full, regarded simply as extensions, have a proportion to one another in the following sense. Since both are extensions, we can compare the ratio of their extension—for instance, one stade long or one cubit long. The ratio(s) that they have to one another relates to their extensionality, to their nature as bodiless magnitudes, and to their quantity.\footnote{I quote Philoponus (\textit{in Phys.}, 685, 10-12): ‘For the void and the full simply as extensions have a proportion to one another by virtue of their bodiless magnitudes and their quantity, for instance cubits or stades long.’} The commentator maintains that we are not dealing with a proportion between the full and the void, but rather with the proportion between two bodiless magnitudes or between two extended quantities. If the mediums are seen as simply extensions, the times of motion through the mediums have a proportion to one another too. But when we take a case in which we think of the bodily medium with respect to its corporeality (and not to its bodiless extensionality), then this medium cannot have any proportion to the void, which is irrelevant to the addition of time.

The cause of Aristotle’s and Themistius’ fallacious reasoning can be firmly identified: they transpose the relationship of the times of motion to that of which the time is predicated, namely the mediums through which the motion takes place.\footnote{A Philoponus says: «καὶ ἐπὶ ταύτα ἄν ὁ χρόνος κατηγορεῖται», \textit{in Phys.}, 685, 23-25.} Philoponus illustrates this with an example. We assume that, when we think of a specific theorem, some time has passed—for instance, one hour; and let us say that there is a stone that covers a distance through the water in, for instance, two hours. According to the Aristotelian argument, the times of these motions will have a proportion to one another, and the mediums of which time is predicated will necessarily have the same proportion to one another. Consequently, the water will have a two-to-one proportion to thought ($διανόησις$) with respect to consistency ($κατὰ τὴν σύστασιν$); and the same for the motion to thought and the stone to the theorem respectively.\footnote{See \textit{in Phys.}, 685, 29-686, 2.}
Obviously, this is absurd. The void and the full will never have a proportion to one another because they are of completely different kinds (inhomogeneous).

The whole treatment analyzed so far in this section examines locomotion in terms of a void-full relationship. Philoponus agrees with Aristotle on the impossibility of the relationship between the void and the full, but for different reasons. Aristotle, on the one side, points out that void cannot have any proportion to the full, since the void is a non-being; Philoponus, on the other side, states that the void plays no causal role in locomotion and thus cannot have any proportion to the full. Philoponus’ extension-theory, from the digression on place onwards, argues that bodies have a specific relationship with place. We have already seen that place cannot be the cause of anything, for otherwise we have to admit that place consists of matter and form, so that it can act on bodies or be acted upon by them. Aristotle rightly avoids ascribing to void a causal role in cases of unequally speeds of bodies. But he reaches this conclusion on the basis of two false assumptions: first, that the void does not exist and, second, that every medium through which a body moves needs to be a cause of unequally rapid motion. For Aristotle, bodies can have proportions to other bodies with respect to their consistency. Philoponus’ theory does not presuppose the corporeality of the mediums through which bodies move; certainly, bodies can move through water or air, but the theory additionally suggests a concept of voided place, claiming that locomotion signifies the traversing of a bodiless extension. In the latter case, we need to reestablish the relationship between a body and its voided—in its own definition—place.

In fact, Philoponus’ theory allows the existence of an incorporeal medium through which bodies move. The void is an intrinsic characteristic of the universe. Locomotion means filling up voided place. As stated in the digression on place, the unaffected place prevents any causality from being attributed to the void. In the first part of the digression on the void, the ontological difference between void and body appears in terms of inhomogeneity.

Philoponus uses a less polite characterization: «το ἦτο δὲ καταγέλαστον», in Phys., 686, 2. In addition to the example of the theorem and the stone, Philoponus sets out a number of examples (in Phys., 686, 5-23) dealing with changes of different kinds (warmth, change of colour, and motions of planets). I need to make a general remark here: impolite characterizations are common in Philoponus’ digressions and running commentary; we have many other examples of insulting and disrespectful expressions on Philoponus’ part. When a claim appears to him to be completely absurd, he uses the expressions «γελο ῖον» and «καταγέλαστον» (in Phys., 572, 25; 581, 18-19; 686, 2; 691, 12; 692, 32; 693, 16; or «ε ὤηθης ἡ ἀπάντησις» in line 576, 22). Expressions of that sort appear in the running commentary too (in Phys., 534, 22-23; 628, 20; 669, 13). If we want to form the right picture of Philoponus’ character, we should certainly note that he approves some well structured arguments without hesitating (in Phys., 559, 24-29; 565, 19-21; 566, 31; 572, 10; 582, 26-28; 675, 18-19). Nonetheless, we should be aware of the fact that these expressions either are not directly addressed to Aristotle or are not directed to Aristotle at all. We could perhaps safely say that the target is Themistius’ argument in some cases.


We saw Philoponus’ views in Chapters 2 and 3.

See in Phys., 559, 9-18.
The way Philoponus treats the relationship between void and full aims at proving that the existence of the void does not necessarily mean that the void has to have a proportion to the full. We cannot be sure whether or not Philoponus criticizes other theories of the void in this way. It is safe to assume, however, that Aristotle thought that this absurdity derived from theories which claimed the existence of the void. I would prefer to take no position on whether or not Aristotle correctly interprets the theory of the void he has in mind (that of the Atomists). But it seems that Philoponus considers the matter as another argument against an incorporeal extension through which bodies move and, for that reason, he forms his own refutation, which protects his theory of place.

Bodies differ from void in many respects. It is false to treat the void as a body: this is Aristotle’s mistake. We can find some proportions among bodies, but it is unfair to apply this principle to the void-full (κενόν-πλήρες) relationship. The only way to outline a proportion between the void and the full seems to be to think of their extensionality per se. But the (three-dimensional) extensionality of the void is the only essential characteristic it possesses, whereas in the case of bodies extensionality is not their only, and indeed not even their primary, characteristic; they consist of matter and form, and that is what makes them different in kind from the void, which does not partake of matter or form. The locomotion of bodies is redetermined by Philoponus in the sense that it is the lack of corporeal consistency of the void that allows bodies move. The efficient cause of motion through void is not the medium (void) but the bodies themselves, whether we are speaking of natural motion or forced motion. Bodies change position within the local extension because of their natural impulses or the intrinsic power that they keep when they are forced to move (impetus). The relationship between the void and the full and, accordingly, the motion of bodies through the void is best described by Philoponus himself, when he says that the body is in the void ‘as the full is in what is to be filled’.

As a follow-up to the previous discussion, we must not leave aside the fourth part of the digression. Philoponus studies examples pertinent to motions, such as circular motion (ἡ κύκλῳ κίνησις), motion in straight line (ἡ εὐθυφορία), motion of choice (ἡ προαιρετική...

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298 Sedley expressed his doubts concerning the fairness of Aristotle’s objections (1982, pp. 179; 185; 186).
299 «ὡς πλήρωμα ἐν πληρουμένῳ, in Phys., 689, 22.
300 See in Phys., 689, 26-693, 27. Philoponus expresses the subject matter at hand as follows: ‘First, we will show that if there were void that is separate and deprived of all body, nothing would prevent locomotion from occurring through it; then, as we have already said, generally locomotion does not exist without there being such an extension deprived of all body in its own definition, even if it never exists without body,’ in Phys., 689, 27-32. He examines the issue in its own right, «αὐτὸ καθ’ αὐτό», as he says (in Phys., 690, 3).
κίνησις), and forced motion (ἡ ἐπαρά φύσιν κίνησις, ἡ βίᾳ κίνησις). His considerations are not brought up here as responses to Aristotle, Themistius, or anyone else; they are not rejections of any sort. Philoponus chooses kinds of motion and examines whether his voided local extension is concordant with them or not. In fact, Philoponus uses various aspects of his theory which have already been stated in the objections to Aristotle and Themistius. Both assumptions—that (i) motion through void requires time to be consumed and, consequently, (ii) that bodies through void can still move fast or slow—are again on the table. Celestial bodies in circular motion (for instance, the sphere of fixed stars) can move fast or slow. Of course, these motions occur in time; and the same holds for bodies moving in straight line. When they move through the void, the same rule applies, namely that the void, as the medium through which these bodies move, plays no causal role in their movement, but their natural impulses guarantee that some bodies move faster or slower than other bodies. Furthermore, if a man decides (according to his προαίρεσις) to walk from Athens to Thebes, but this time not by traversing air, what do we observe? Philoponus hypothetically states that the space between heaven and earth is empty. Does the man walk from Athens to Thebes in no time? If one replies that the walk is timeless, it is implied that the motion of the man is instantaneous, which, in turn, is absurd, since a walk cannot be instantaneous, for otherwise the man could be at the same instance both at Athens and at Thebes, and grosso modo he could be everywhere at the same time. The answer to the hypothesis that one could walk faster than someone else from Athens to Italy in the void will be similar: whoever is more powerful can walk faster, without the void preventing or acting upon his body while walking.

The motion of arrows shot by archers can take place in the void and, nonetheless, still consume time; and some arrows may be faster than others. The cause of the arrows’ movement does not relate to the medium through which they move. If the arrows move through the undifferentiated void, the power of each of the archers determines how fast or slow the arrows consume time. The last thought experiment found in the digression on the

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301 Philoponus’ examples are intentionally exhaustive, covering all cases of locomotion. In my view, the corollary on projectiles (impetus) ties in with this approach of locomotion as well (in Phys., 639, 3-642, 26). We should also include the very last part of the digression on the void, in which Philoponus briefly examines the causes of the differentiated motions that bodies of unlike form (τὰ ἄνομοισχήματα) might have (in Phys., 694, 28-695, 8).

302 Obviously, Philoponus includes the motion of projectiles too. The example of the archer and the arrow found in the digression on the void directly refers to the corollary on projectiles that appears at the end of the second lecture on Physics IV, 8 (in Phys., 639, 3-642, 26). Philoponus attacks the theory of the Aristotelian tradition, since he finds it unpersuasive and fictitious (πλασματώδης). He suggests a theory regarding the motion of projectiles that had a significant impact on physics. Philoponus’ explanation of the motion of projectiles is that the archer transmits to the arrow a bodiless moving power (κινητικὴν τινα δύναμιν ἀσώματον ἐνδιδόσθαι) and that air either does not contribute at all to the motion or just a little. We can hardly get a concise explanation of
void assumes, once more, that the space between heaven and earth is completely empty. If we let go of a stone from the sphere of fixed stars, will it arrive on earth in no time? The answer is similar to those given above: the stone should consume time in proportion to its weight. Philoponus discusses motions of choice (αἱ προαιρετικαὶ κινήσεις) and forced motions in order to show that, if it is possible for these motions to occur in time through the void, then the same should hold for natural motions too. In a sense, Philoponus worries more about proving that natural motions can occur in the void, than forced or deliberately chosen motions; one reason may be that the natural motions of bodies are more essential to the constitution of nature than motion involving an agent who produces the motion of another body (for instance, me throwing a stone). Natural motions of bodies are the primary way for a body to move.

There is, however, one last puzzling issue, which touches upon all these matters. What does Philoponus mean when he says that bodies move through the void? At first glance, the passages of the digressions in which Philoponus isolates the void, deprived of bodies, bring to mind the modern conception of the void, according to which we can actually create a space in which not even air exists. Of course, that would be a terrible anachronism. Philoponus seems to use some of his thought experiments to grasp conceptually the condition of an absolute void. Philoponus’ ‘void’ is defined as place: the place of bodies is itself empty. The only way to grasp the condition of absolute void is to think of the local extension in its own right. Philoponus constantly refers to both the conceptual and the sensible aspect of the local extension (the extension filled by bodies). Based on the suggested interpretation, natural bodies, in Philoponus’ theory, traverse the local extension, changing position within it in the motion of projectiles from Aristotle’s *Physics* (Hussey’s attempts to explain the motion of projectiles in Aristotelian terms seems to be plausible (1991, pp. 230-236), though I have some objections, especially to his comments on Philoponus’ criticism). For my purposes here, I would like to draw attention to Philoponus’ intention to explain that nothing prevents the motion of the projectiles from occurring in the void, denying the Aristotelian assumption that forced motion is impossible in the void. The bodiless power (impetus) transmitted to the projectile by the thrower guarantees that the projectile will move, even if it moves through the void. If the space through which the projectile moves is of that sort, namely void, the cause of this motion will only be the man that impresses the *impetus* to the projectile (in Phys., 642, 20-26). On the *impetus* theory of Philoponus see Wildberg (1999, pp. 122-123).

303 Evidence of Philoponus’ persistence in using thought experiments is their frequent appearance in his commentary on the *Physics* and in particular in the digressions. Most of all, he seems to be loyal to his intention of eliminating bodies from the universe.

304 Two passages from the fourth part of the digression on the void testify to such a claim: «τι οὖν καθότι και φυσικὴν κίνησιν διὰ κενοῦ γενέσθαι», in Phys., 692, 26; «αἱ τοίνυν και αἱ προαιρετικαὶ παρὰ φύσιν κινήσει κενοῦ ὄντος ἐν χρόνῳ ἀν ἐγένοντο, δὴν δῆσαν ὅτι καὶ αἱ κατὰ φύσιν», in Phys., 693, 12-14. It may be the case that Philoponus tries to cover his back from the criticisms of Aristotle (Phys., 215a4-6) and Themistius («ἀν τοίνυν ἐπιδείξειμεν μὴ σωζόμενην τὴν κατὰ φύσιν ἐν τῷ κενῷ, δὴν δὴν ὃς τῶν παρὰ φύσιν σωθήσεται», in Phys. paraphr., 129, 1-3; «ἐξήρκει μὲν οὖν καὶ οὕτως ἀποδείξει τὴν παρὰ φύσιν κίνησιν μὴ σωζόμενην ἐκ τοῦ μὴ σώζεσθαι τὴν κατὰ φύσιν», in Phys. paraphr., 129, 14-15).
relation to other bodies. This is definitely different from grasping the conceptual aspect of the void. Locomotion should be understood in the same way. If bodies are potentially eliminated from the universe, and only one or two bodies are mentally filling it, then we speak of the potential motion of bodies through the void, namely place. So we can consider the locomotion of bodies in two clearly distinct instances of the local extension; the difference is that, in the one instance, bodies are actually moving through the local extension they fill, and, in the other, bodies potentially move through the void.

4.4 Void as the necessary condition for locomotion

We can now recapitulate our discussion about the concept of the voided place. We emphasized the importance of the concept of plērōsis in Philoponus’ account of place and we saw in detail his definition of place as void. We further examined how Philoponus builds the relationship between the void and the full and, moreover, his views on how bodies can move through the void, which reestablishes interest in locomotion of bodies. Here, I shall put forward a different matter, viz. whether the void is a sine qua non for the existence of locomotion, according to Philoponus, or not. To do so, we need to focus on the fifth part of the digression on the void (in Phys., 693, 28-694, 27). Philoponus expresses a fairly clear opinion about the necessity of voided place for locomotion. His method follows the same path—building arguments on natural phenomena—as in the fourth part of the digression. The whole section is a reply to the Aristotelian claim that there cannot be motion at all in the void.305 Philoponus’ response, apart from showing that motion through the void is possible, also asserts that the void is a necessary condition for motion.

Let us think, Philoponus proposes, of the following case. A body moves through a body, for instance air; the parts of air (in which the body comes to be) must yield (ἀντιπαραχωρεῖν) their places to (all the parts of) the body. The volume of air that gives way to the body is as great as the bodies’ volume. How is it possible for the air to yield place to the body? According to Philoponus, the «ἀντιπαραχωρεῖν» would not be necessary if there were not a void extension which was occupied by the displaced body (air)—i.e., when the moving body displaced the air. The air steps aside in order to give space to the body for

305 Themistius follows Aristotle, as expected; the difference is that, as well as the opponents Aristotle had in mind (especially Democritus), there are clear objections to the Epicurean tradition and the Stoics. See in Phys. paraphr., 127, 28-133, 14.
moving.\textsuperscript{306} For Philoponus, the displacement of the air indicates that there is a remaining extension that the moving body immediately fills. His syllogism goes as follows (\textit{in Phys.}, 694, 4-12):

1. If the moving body always passes by (\παραμεῖβει) a certain extension equal to itself,
2. and if this extension must be either void or body,
3. and if it is impossible for body to pass through body,
4. and if it is, therefore, necessary that the moving body occupies something void,
5. and if the moving body is three-dimensional, and changes position as a whole,
6. then it will need to occupy an equal space to it—i.e., three-dimensional space;
7. therefore, if this extension did not exist, it would be impossible for the moving body to displace a quantity of air equal to itself.

The whole syllogism saves the phenomena or appears as a scientific formalism in modern terms. Philoponus’ argument offers a number of scientific observations regarding natural phenomena, such as the filling up of something empty, the impenetrability of bodies, and the equality of a three-dimensional body to the space it occupies. Sentences 4 and 7 conclude that there is an empty extension that the moving bodies fill and that, without this voided extension, the replacement of bodies (\ἡ ἀντιμετάστασις τῶν σωμάτων) in a space of equal quantity to their three dimensions would be impossible.\textsuperscript{307} Locomotion means that bodies pass through an extended place, but not in the sense that they pass through different limits that constitute their place. Place should be considered a kind of void extension. It is impossible for a body to pass entirely, as a three-dimensional whole, through a body. So, if the body traverses a void extension, the bodies around it have to exchange positions; bodily exchanges are ruled by the principle of equality that place should have to body. In order for the replacement of bodies to happen, bodies need to move through, and fill, a kind of place that can receive them in all their three dimensions. Otherwise, if the place could not receive the body as a whole, the body could never exchange place as a whole; and the replacement of bodies—i.e., locomotion—would be impossible. It is noteworthy that Philoponus wants to present the way nature functions: his syllogism appears as a natural procedure that actually

\textsuperscript{306} «ἐξὶ τὸ κινηθῆναι», \textit{in Phys.}, 693, 35.

\textsuperscript{307} Here Philoponus seems to agree with Epicurus’ claim (\textit{Epist. Herod.}, 39-40): «τόπος δὲ εἰ μὴ ἦν, δὲν κενὸν καὶ χώραν καὶ ἀναφη χόσιν ὄνομαζομεν, οὐκ ἂν εἶχε τὰ σώματα ὅπου ἦν οὐδὲ δι᾽ οὗ ἐκείνο, καθάπερ φαίνεται κινούμενα». 118
happens in the cosmos, and it provides an explanation of bodies yielding to one another in one particular way, and not differently.\textsuperscript{308}

According to Philoponus’ extension-theory, the voided local extension cannot be the cause of locomotion. Instead, it assures the existence of locomotion, in the sense that locomotion is explained with respect to voided extension and not with respect to bodies. Bodies move as wholes because they fill place. Two conditions, so to speak, play a decisive role in Philoponus’ theory: the replacement of bodies (\textit{ἀντιμετάστασις}) and the so-called ‘violence’ of the void (\textit{ἡ βία τοῦ κενοῦ}). The universe is well-ordered when bodies fill their proper positions within the local extension and gaps do not appear; actual void is prohibited by nature’s laws. The dependence of locomotion on the local extension expresses the aspect of the actualized locomotion in nature.\textsuperscript{309} Moreover, in connection to this, Philoponus attempts to introduce what I call the ‘epistemological’ priority of place over locomotion and over simple and composed bodies.\textsuperscript{310} Aristotle denies that place may have ontological priority when he examines the Hesiodian view.\textsuperscript{311} Nevertheless, Philoponus additionally asserts the ontological priority of place over locomotion in the digression on the void. Locomotion would be impossible without the existence of the void (place). Be that as it may, we should be very cautious in distinguishing between the ontological priority established by Philoponus and the attribution of a causal role to the void.

Aristotle is more probably referring to Democritus and his circle, who believed that void was necessary to the motion of bodies, without specifying whether the void was the cause of locomotion. Themistius, it seems, depicts the same circle, perhaps involving Epicurus also, and he attacks those who maintain that the separate void is the cause of

\textsuperscript{308} Philoponus gives an extra argument in favour of the necessary existence of the void with another thought experiment. If we think of a case in which air is removed from its proper place, and neither the moving body nor the surrounding air comes to be in this place, then there would remain an empty extension in which the moving body could come to be (\textit{in Phys.}, 694, 12-17). Philoponus claimed the existence of the local extension in the digression on place with a similar argument (\textit{in Phys.}, 574, 13-19; 575, 17-20). The same thought experiment appears in Cleomedes’ \textit{Caelestia}, I, 1, 39: ‘We can also conceive of the cosmos itself moving from the place that it currently happens to occupy, and together with this displacement of it we shall also at the same time conceive of the place abandoned by the cosmos as void, and the place into which it is transferred as taken over and occupied by it. The latter [place] must be filled void’ (translated by Bowen-Todd 2004, p. 24). Moreover, sentences 4-7 above resemble the arguments that Cleomedes sets out in order to show the existence of the place of bodies (\textit{Caelestia}, I, 1, 25-38).

\textsuperscript{309} Here Philoponus speaks up for the sensible aspect of the place. To repeat, the distinction, I suggest, is between two different aspects of the local extension: the sensible, by which we refer to the place actually filled by bodies, and the conceptual, by which we refer to place per se—i.e., place empty in its own right.

\textsuperscript{310} Philoponus’ argument in his first lecture on IV, 1 (\textit{in Phys.}, 497, 10-20) is plausibly taken from Aristotle (\textit{Phys.}, 200b20-21).

\textsuperscript{311} \textit{Physics}, 208b29- 209a1.
motion. Philoponus too rejects the view that the void, either separate or not, can be the cause of motion. The ontology of place permits an extension which is capable of being filled by bodies, of being three-dimensional and equal to bodies, and is in any respect unaffected. Philoponus’ extension-theory holds that the void is the only prerequisite for locomotion, the *sine qua non* for motion. Locomotion may well be nothing more than an incessant replacement of bodies within the local extension; this means that motion occurs if and only if there is a voided place to be filled. Motion without voided place is unrealizable. In other words, if there were not a voided place, then the universe would consist of a group of static bodies haphazardly gathered and the cosmic local extension would be occupied by a mass of bodies at rest.

If asked to summarize, in conclusion, Philoponus’ definition of place, I would paraphrase Philoponus’ words throughout the digressions on place and void in the following manner: ‘We define τόπος as the three-dimensional (τριχῇ διαστατὸν) extension (διάστημα), which in its own definition extends over and above the bodies that come to be in it; it is space (χώρα) for body, and dimensions alone, voided (κενὸν), immobile, and separate from all substance and matter. We do not mean that this extension either ever is or can be empty of all body, but rather that it is something different (ἕτερον τι), empty in its own definition, though never without body; an extension concomitant to and equal to the natural bodies which fill it (πλήρωσις).’ Having looked in detail at Philoponus’ theory of place in both the commentary’s digressions (Chapters 2, 3 and 4), the study now turns to Philoponus’ attack on the Aristotelian definition of place and its reception by the Peripatetic tradition.

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312 See Aristotle’s *Physics*, 214b28-29, and Themistius’ *in Phys. paraphr.*, 128, 24-130, 2; 130, 18-133, 14 and 127, 28-128, 23. Perhaps Themistius’ discussion of this opinion at the beginning of his paraphrase of *Physics* IV, 8 reflects Aristotle’s discussion of the void as the cause of motion in IV, 9 (*Phys.*, 216b33-217a10; 217b20-28). Alternatively, Themistius may be referring to a different context and attacking the early Atomists and Epicurus. I should point out that Iamblichus interprets the concept of place in Plato’s *Timaeus* in terms of causality, in the fifth book of his commentary on Plato’s *Timaeus* (Simplicius, *in Phys.*, 639, 25-36); place, according to Sambursky (1977, p. 177), seems, then, to be the active cause of the coherence of the bodies.
CHAPTER 5 Philoponus against the Aristotelian Definition of Place

Philoponus, in the first part of the digression on place, mainly aims to challenge, or to redetermine, the following Aristotelian assumptions: (i) Three-dimensionality is only attached to body, not to place; (ii) there is equality between place and what is in place; (iii) place cannot be an extension; and (iv) place is the first immobile limit of the surrounding body. The second part of the digression on place (in Phys., 563, 26-567, 28) deals with the last point, namely the Aristotelian definition of place as the limit of the containing body. Philoponus argues that Aristotle’s definition is insufficient because it fails to support even some of the main assumptions which Aristotle himself approves as true for place. Furthermore, as we shall see, Aristotle’s vagueness is the cause of misleading assumptions concerning the motion of bodies and the place of the heavens. Philoponus’ criticism consists of five arguments in total. First he repudiates the two-dimensionality of place implied by the definition; second, he attacks the Aristotelian conception of equality between place and what is contained in it; third, he objects to the Aristotelian principle of place’s immobility; fourth, he aims at making apparent how the Aristotelian definition is responsible for false opinions, as far as the place of the sphere of fixed stars is concerned. Finally, the fifth argument displays how the definition of place as the limit of the surrounding body fails to explain the motion of bodies. Philoponus’ criticism focuses on showing that the Aristotelian account of place can be turned against several aspects of place which Aristotle accepts as true. Having revealed his conception of place as a bodiless, unaffected, and three-dimensional extension, the commentator now applies his thoughts to the Aristotelian definition in order to see whether this definition is necessarily true or not.

313 See Physics, 209a 4-6; 211a 1-2; 211a 27-29; 211a 31-34; 212a 29-30; 211b 19-25; 212a 5-6; 212a 14-30.
314 Simplicius reports that Theophrastus posits some difficulties concerning Aristotle’s account of place (Simplicius, in Phys., 604, 5-11; Fortenbaugh et al., 1992, p. 302, fr. 146). I do not know how far one could stress the similarity between the difficulties raised by Theophrastus and Philoponus respectively (for example, Golitsis 2008, p. 179) and Algra—Ophuisjen (2012, p. 1) accept that Philoponus uses Theophrastus). On whether Theophrastus intended to criticize Aristotle or not, see Algra (1995, pp. 231-248), who seems to be in favour of the opinion that Theophrastus’ fragments show a ‘free handling of the Aristotelian material’. For further reading: Sharples 1998, pp. 48-53; Morison 2010, pp. 68-103.
5.1 Place as the limit of the containing body

Aristotle defines place as the limit of the containing body \((Phys. 212a5-6)\). The proper place of a body is the immediate limit that contains it. For example, the place of a tree is not only the whole universe in which it is contained or just the field in which the tree stands; instead the immediate (particles of) air that surrounds the tree should be conceived of as its proper place. In other words, the place of the tree is the limit of air that is in direct contact with the tree, and which, so to speak, separates the position occupied by the tree from the position occupied by the plants next to it. Philoponus’ first objection depends on the very nature of what it is to be a limit of something else. The limit of an object, and especially the limit of a natural body, is a surface.\(^{315}\) The problem with this kind of limit is that a surface has two dimensions and lacks depth.

Philoponus argues that the concept of a two-dimensional limit raises a crucial difficulty for Aristotle. If what is in place is a body, then it is in place exactly by virtue of being body. When something is contained in the surface \((\varepsilonν \tauη \varepsilonπιφανεία)\) of the container, as Aristotle affirms, it must be in the container by virtue of being a body—i.e. by virtue of being a three-dimensional body. But is it legitimate to hold that three dimensions can be contained in two dimensions? Apparently, Philoponus points out, this is impossible; for if something is contained in the surface of the container, not by virtue of being three-dimensional body, then this surface cannot be the place of that body; as a result, three-dimensionality cannot be in a two-dimensional surface.\(^{316}\) His attack intends to underline the conceptual inconsistency with respect to natural facts. The two-dimensionality of a containing limit (surface) obviously does not correspond to the three-dimensionality of any bodies which are contained in it. Arguably, Philoponus’ remark does not harm Aristotle’s definition, but rather is a trivial observation. However, there is a philosophical problem to solve. A two-dimensional surface cannot entirely receive the three-dimensional body, for, contrary to Aristotle’s claims, neither is the limit entirely in contact with the body, nor does it contain the whole body. I take it that this argument is based on the discussion where Philoponus defends the existence of a bodiless extension, which entirely applies \((\varepsilonφαρμόζειν)\) to the body that comes to be in it.\(^{317}\)

Connecting this thought to the current argument, we could say that the only way to conceive

\(^{315}\) \(\varepsilonπιφανεία\), Philoponus, \textit{in Phys.}, 546, 2. See also Aristotle, \textit{Metaphysics}, 1020a13-14; 1022a4-5; Alexander, fr. 64 (Rashed (2011, p. 213).

\(^{316}\) As Philoponus says \((\textit{in Phys.}, 563, 27-31): ‘For if what is in place is nothing else but body, and it is not in place by virtue of something else, but rather by virtue of being body, but what is in the surface of the container is not in it by virtue of being body (for body is three-dimensional, but the three-dimensional cannot be in such a surface), then place is not a surface.’

\(^{317}\) \textit{See in Phys.}, 558, 19-559, 9; 560, 23-561, 3.
of something in place is to conceive the three-dimensionality of both the container and the contained. All three dimensions of bodies should be in place. Thus those who accept a definition which implies that place is the limit of the surrounding body cannot answer the question how the depth of the body is in the surface, since a surface possesses only two dimensions (breadth and length).

Philoponus brings forward another argument, suggesting that the Aristotelian definition of place goes against the equality between place and what is in place (in Phys., 564, 3-14). The principle of equality between place and what is in place is considered by Aristotle as one of the true and commonly accepted characteristics of place. Nevertheless, Philoponus argues that Aristotle’s theory undermines this principle, for it is impossible for a two-dimensional surface to be equal to a three-dimensional body. Aristotle suggests that the place of a body in a sense contains the three dimensions of the body, but this is not enough to determine the equality of place and body. The definition of place needs to be consistent with all the aspects of what it means for a body to be in place. Despite the obvious inconsistency of a two-dimensional place occupied by three-dimensional natural bodies, Philoponus poses a possible objection to his own argument. For instance, one might claim that place is equal to what is in place when place applies to the limit of the contained body. The question is whether the place applied to the limit indicates equality between place and what is contained in the limit or not. Philoponus takes it that the objection does not say that place is equal to what is in place, but rather that place is equal to the limit of what is in place, which (i.e., the body) in its own right is not even in place. Aristotle fails to show, through his definition of place, that the limit can be equal to the whole of the body contained in it. Hence, how is it possible to say that the limit is equal to the contained body, and that place is equal with the limit? I think the key is the notion of ἐφαρμόζειν. The extension-theory, as adopted by Philoponus, presupposes that bodies are in place if, and only if, all of their dimensions fill the

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318 See Physics, 211a2; 211a27-29.
319 The objection is introduced as follows (in Phys., 564, 6-9): ‘If one would say: “I say that place is equal to what is in place when place applies to the limit of the contained,” let him be aware of the fact that he is not saying place is equal to what is in place, but rather equal to the limit of what is in place, which in its own right is not even in place.’

I take it that «ὅπερ» (in Phys., 564, 9) in the quoted passage refers to the body being in place and not to the limit. In this way the sentence starting with «ὅπερ» makes much more sense. The idea is that if place is equal to the limit of the surrounding body and not to what is surrounded, then that thing cannot be in its own right in place: its limit would be in place. Philoponus considers this claim to be another absurd consequence of the Aristotelian definition of place. My interpretation here relies greatly on the assumption that if place is a surface, then the body partially is not in place; the depth of the body, though contained by the limit of the surrounding body, cannot be actually in place because the limit does apply to the depth of the body. An alternative reading of «ὅπερ» would be that the limit is not in place per se because it cannot exist per se (according to Aristotle). I owe this last observation to Frans de Haas.
place. In other words, something is not in place, if at least one of its dimensions does not occupy an equal position to its entire bulk within the extension. This is how a body applies to the bodiless three-dimensional local extension in order to gain equality between place and a body filling it.

The Aristotelian definition of place as the limit of the surrounding body implies that only the surface of the body is in place—i.e., its breadth and length, but not its depth. If we were to provide an analogy of how a body is in place, according to Aristotle, then we could say, perhaps exaggerating, that Aristotle’s concept of place resembles childish paintings. In a child’s painting bodies appear to be in place: the bodies can be distinguished in place by the mere fact that they have distinct limits from one another, but these limits do not signify that the bodies’ depth is actually in place; the limits are just outlines of the figures. In that sense, place is only the outline of the bodies’ position. Nonetheless, the limit should be in contact with every dimension of the body, and Aristotle missed that point, according to Philoponus. The principle of equality between place and what is in place collapses. The limit of the surrounding body cannot be entirely equal to that body. Furthermore, this assumption could lead to various complications. For example, some parts of the body will be in place, but some others will not, and thus place will be either greater or smaller than the whole body, which is impossible. The three-dimensionality of bodies cannot be ignored in the definition of place exactly because bodies occupy as much place as their three dimensions’ extent. Hence, a surface cannot be equal to body, just as a line cannot be equal to a surface nor a point to a line (in Phys., 564, 12-14).

As Philoponus puts it elsewhere, the proponents of the Aristotelian view cannot save the idea of place’s equality to what is in it, for place within the Aristotelian framework is equal to the perimeter of the body and not to its entire three-dimensionality. Philoponus’ thesis is that equality between place and what fills it (and not just with the limit of the contained body) is based on the principle of applying a bodiless extension to body. So, equality of place and what is in place means equality between the three-dimensional extension and the three-dimensionality of the body. Aristotle’s two-dimensional surface cannot be the place of natural three-dimensional bodies, because in that case place determines only their perimeter. Philoponus’ extension-theory, on the other hand, permits place to be totally equal to what fills it, for the body comes to fill the extension with all its dimensions.

5.2 Place in motion

A further difficulty, deriving from the Aristotelian definition of place, harms the principle of place’s immobility. Aristotle, after defining place as the limit of the surrounding body, goes on to claim that the place of bodies must be immobile (Phys., 212a14-21). The first step towards clarifying how Aristotle conceives of place’s immobility is to consider what it is for a thing to be surrounded; then we should further ask what it means for something to be surrounded by a limit and determine this kind of limit. Finally, we need to investigate why place should be immobile.

Aristotle states that bodies are in place in the following sense. He spells out the distinction between common and proper place in terms of what is said to be τὸ καθ’ αὑτὸ and τὸ κατ’ ἄλλο. Something can be in place in its own right (proper place) or by virtue of something else (common place). Aristotle claims that the common place of all natural bodies is the universe. But when we come to specify the exact place of a body—i.e., its proper place—the universe cannot be the primary place of that body, though it is still its common place. The «τὸ κατ’ ἄλλο» case implies that I am in the universe by virtue of something else and not by virtue of being in the universe in my own right. My proper and primary place is the part of air and the part of earth that now contains me. That is to say, the primary place in which I am now is my proper place, and not the whole earth or the universe: for I am in the universe and on earth by virtue of something else (κατ’ ἄλλο)—i.e. by virtue of my other places.321 Thus place, which cannot contain two or more bodies, is the primary container of each body.322 However, because my proper place is thought to be a part of the place of the universe, I can also claim that in this respect I am in the universe in my own right and not

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321 Aristotle argues that (Physics, 209a31-209b1): ‘Since some things are said in respect of themselves, some in respect of something else, and place may be either (a) the common place, in which all bodies are, or (b) the proper place, which is the first [thing] in which [a body] is (I mean, for example, that you are now in the heavens because you are in the air and that is in the heavens, and you are in the air because you are on the earth, and similarly on that because you are in this very place which surrounds nothing more than you) […]’, trans. Morison 2002, p. 55. We can say that I am in the universe because I am in the air, and that I am in the air because I am on earth because I am in this specific place that contains me and nothing more than me. According to the Aristotelian definition, something is the place of something else, for it has a specific, such-and-such relation with respect to the contained body; in other words, it is place as far as it contains the body which is in contact with it. See also Morison 2010, p. 75: ‘To be somewhere is to be either in a place, or appropriately related to something in a place, so ‘in a place’ is the primary meaning of ‘somewhere.’”

322 As Morison puts it (2002, p. 59): ‘The idea behind a proper place is the following. My places differ in that some are more precise than others. The notion of a ‘more precise’ place is easily defined: x is a more precise place than y iff anything in x is in y, but not vice versa.’
only by virtue of something else.\textsuperscript{323} The Aristotelian definition of place necessitates that I am contained by the limits of the bodies that are immediately in contact with me.

The distinction between common and proper place also seems to be present in another text from Physics IV, 4.\textsuperscript{324} The text rephrases how bodies are in place in their own right (\textit{kath'} \textit{αὑτὸ}) and by virtue of something else (\textit{kath'} \textit{ἄλλο}). In the case of bodies in a vessel, the replacement (\textit{ἀντιμετάστασις τῶν σωμάτων}) between air and the water (or their parts) happens in the thing in which they are (i.e. the vessel), that is to say in their proper place;\textsuperscript{325} it does not happen in the place in which they come to be (e.g., this room), which (place) is part of the broader place (e.g., the air), which is the place of the whole universe. In other words, in the case of the replacement of bodies, the water and the air are primarily contained in their proper place, rather than in the other places in which they are contained (the whole earth, the whole air, the universe). Their proper place is the limit of the vessel.

A limit stands as the boundary of each body, separating one body from the other. Being surrounded by a limit of something means that this limit is in contact with the surrounded body. Each time I am in contact with a specific part of the air, of the earth, and sometimes of other bodies around me, for instance, the chair on which I am sitting now or the table on which my hands now lie. All these bodies that are in contact with me are somehow limiting, determining my proper place. According to Aristotle, place primarily contains bodies, and it is a limit, in the sense that it cannot be infinite (\textit{ἄπειρον}). Place limits bodies; the limits individualize the positions that bodies occupy. As has been said earlier, the universe seems to be the common place of all bodies. This can easily be understood, for all bodies are parts of the universe, and thus their places are parts of the place of the whole universe. Proper places are parts of the place of the whole universe, but it seems that they can also share other characteristics of the place of the universe, for instance, its immobility. This, I assume, is the reason Aristotle claims that the places of bodies are immobile. The idea seems to be that if the place of the universe (the common place of all bodies) is immobile, then the proper place of bodies should be immobile too. Aristotle holds that place is an

\textsuperscript{323} However, it is crucial to underline that the universe, according to Aristotle, is not in place in the sense that nothing else exists outside of the universe that contains it (\textit{De caelo}, 278b21-279a12). In the \textit{Physics}, Aristotle explicitly says that the universe is not contained in anything else and, therefore, is not somewhere as a whole. Since all things are in the universe, nothing is external to it. The universe is in place accidentally (\textit{Physics}, 212b7-22). The parts of the universe are in place, and in this sense the universe is said to be somewhere accidentally without the need of an external container.

\textsuperscript{324} ‘When the whole vessel changes place, the place in which the part moves is no other, but the same; for the air and water or the parts of the water exchange in the place they are, but not in the place they come to be, which is part of the place that is the place of the whole universe,’ \textit{Phys.}, 211b27-29.

\textsuperscript{325} Also in \textit{Phys.}, 211a28-29: «τοιοῦτος δ’ ὁ πρῶτος ἐν φ’ ἐστιν». 
immovable vessel, whereas the vessel is a movable place. A body that moves in a moving body and changes, is actually in a container in the sense of being in a vessel—as, for instance, in the case of a boat on a river. Place is immovable because the whole river is the place of the boat, and the whole river is immovable:

«ἐστι δ’ ὡσπερ τὸ ἁγγεῖον τόπος μεταφορητός, οὕτως καὶ ὁ τόπος ἁγγεῖον ἁμετακίνητον. διὸ ὅταν μὲν ἐν κινούμενῳ κινήται καὶ μεταβάλλῃ τὸ ἑντός, οἷον ἐν ποταμῷ πλοίον, ὡς ἁγγεῖῳ χρῆται μᾶλλον ἢ τόπῳ τῷ περιέχοντι. βούλεται δ’ ἂκινήτους εἶναι ὁ τόπος· διὸ ὁ πᾶς μᾶλλον ποταμὸς τόπος, ὡς ἄκινητος ὁ πᾶς. ὡστε τὸ τοῦ περιέχοντος πέρας ἄκινητον πρῶτον, τότε ἐστιν ὁ τόπος», Phys., 212a14-21.

'Just as the vessel is a portable place, so is place an immovable vessel. So when what is inside moves and changes in something movable, as for instance the boat in the river, the containing thing is used as a vessel rather than as a place. Place is meant to be immovable; because place is rather the whole river, for it is entirely immovable. So that is what place is, the first immovable limit of that which contains.'

The analogy of the boat in the river suggests that place should be considered as immovable inasmuch as it is seen as the common place in which a body is. Furthermore, the proper place of a body must be immovable because it is part of the immovable universal place. Aristotle redefines place as the first immovable limit of the containing body. But this, I take it, means the common place of all bodies, that is to say the universe. Additionally, I should point out that this also seems to refer, for Aristotle, to the proper place: the first immovable limit, in the example of the boat floating on the river, is the whole river. The immobility of place ensures that we can distinguish within the universe upper, middle, and lower parts, and specify the position and the direction towards which heavy or light bodies move.326

In order fully to assimilate the development of Philoponus’ criticisms, we need to go through three parts of Philoponus’ text: first, his comments on the distinction between ‘proper’ and ‘common’ place (in Phys., 514, 15-515, 8); second, the digression on place, where he criticizes Aristotle’s conception of immovable places (in Phys., 564, 14-565, 1); and, third, his exegetical comments and criticism of Aristotle’s analogy of a boat floating on a river (in Phys., 586, 9-24; 587, 9-588, 27). To begin with, the exegetical comments on

326 Physics, 212a21-28.
Aristotle’s distinction between common and proper place are of some importance. Philoponus explained this distinction, established by Aristotle, to his students in the following manner. There is the place in which I am in my own right (καθ’ αὑτὸ) and primarily (πρώτως), and there is the place in which I am by virtue of something else (κατ’ ἄλλο). The universe is not my primary place, since I am in it by virtue of something else. The same stands for air and earth: I am in these places by virtue of something else. The place in which I primarily am is the specific part of air and earth that contains me right now. Philoponus phrases the Aristotelian concept of proper place by saying ‘this is primarily and in the proper sense the place of each body, the one that immediately contains only each one (i.e., of the bodies) and separates it from other bodies.’ 327 I believe that proper place is correctly conceived of by Philoponus within the Aristotelian framework: place proximately or immediately contains solely one body at a time and marks off the boundaries of this body from other bodies. The argument against Aristotle’s immobility of place in the digression on place is based on that understanding of the concept of ‘proper place’, as we shall see later.

Let us first turn to the third lecture on Physics IV, 4, which appears right after the digression.328 In this lecture, Philoponus explicates the analogy of the boat in the river according to his conception of the distinction between common and proper place. He argues that Aristotle’s claim is that when something moves in a movable thing, we say that something is in something else as in a vessel, and not as in place. In the example of the boat which is moving in the river, the boat moves along with the stream of the water and thus the water immediately containing the boat is considered more as a container-vessel than as a container-place (using Aristotle’s words). But the vessel is a case of moving place, and what we are attempting is to establish the immobility of place: if place must be immovable, then the stream of the river is not this kind of place. Aristotle, as Philoponus underlines, considers the whole river as the immovable place of the boat in order to avoid the absurdity of a movable place. The commentator argues that Aristotle meant that the common place of bodies is immovable, rather than the place in which things primarily are—i.e., their proper place. The outcome of Aristotle’s argument is that when something moves in the air and the air moves along with it, it could be said that this body is in a vessel, rather than in place. But when air is considered as a whole and stands still, then it could be said that the body is in place, for the place of the body should be immovable. This is how Philoponus explains the Aristotelian argument.

327 in Phys., 515, 5-7.
Considering only the common place of all bodies as immovable does not seem to be a sufficient solution for Philoponus. He offers a criticism right after his explanation of the boat analogy (in Phys., 587, 27-588, 27). If there is a body in the river under the water, for example a rock, and the water subsides, then the rock is no longer contained in the surfaces of the water, but now the surfaces of air contain it. The rock now has a different proper place without itself having moved at all. Hence, the place moves, and at the same time there also is a formal change of place (κατ’ εἴδος): the place of the rock is no longer the water, but the air. Now, let us take into account that the Aristotelian doctrine implies that the limit of the containing body has a specific relation to the contained body, namely the container must be in contact with the contained. In this case, according to Philoponus, some further complications arise. Suppose that the air around me is not moving, but I move. Now, whichever part of the air I am in, it is necessary that I have the same particular relation to the air, according to which I am contained in it. In order to save the immobility of place, an Aristotelian proponent would have to commit himself to saying that the limits do not change; they always define the particular relation between the container and the contained. But then, Philoponus replies, he would have to confront an absurd consequence; for if this is true, then Socrates is in one and the same place, whether he is in the agora or in the Lyceum. Hence, Socrates cannot move in

329 Morison interprets the analogy of the boat on the river as follows (2010, p. 77): ‘So, for instance, the water which surrounds a boat on a river and which moves with it when the boat drifts downstream, carries the boat, whereas the whole river, which is immobile, locates the boat; the boat moves around within the whole river (considered as a “geographical entity”) rather as moving things move around within the universe.’ See also Morison 2002, pp. 150-152. Elsewhere Morison introduces Aristotle’s definition of place in a broader sense, according to which we deal with “an account of what it is for something to be located,” (2010, pp. 75-76). I am inclined to think that to be “broadly located” and to “determine the exact and proper place of a natural body” are not identical here. It is not clear whether Aristotle wants to define with the example of the boat the location of the boat in a broader sense or to determine the proper place of the boat. Philoponus takes it that Aristotle refers to the proper place and points out the complications of such an account. If we follow Morison’s interpretation, then there is, I believe, a serious objection to confront: the analogy Aristotle draws is between the vessel containing water and a boat floating on a river (212a16-18). The vessel is the proper place, according to Aristotle, of the water contained in it, whereas the whole river cannot be the proper place of the boat on it, because there is always a specific part of water that contains the boat, which is its actual proper place. From this perspective, I cannot see how Aristotle can be speaking of the location of the boat in a broad sense, since his analogy involves in one of its counterparts the proper place of something (vessel). In my opinion, Aristotle gives a bad example that further complicates his own theory. In other words, Aristotle would have to prove how his definition of the first immovable limit of the containing place can remain true in the example of the boat. The whole river is obviously not the first immovable limit of the containing body, even if we see the whole river as a ‘geographical entity’. I agree with Morison that the whole river might be a way to locate the boat. And I agree that the water carries the boat. But I do not see in Aristotle’s text a clear argument that does not contradict his own definition of place. It seems that Aristotle cannot escape the absurdity of moving places, as Philoponus shows. A reasonable criticism of Aristotle’s theory of place and Morison’s interpretation of it is introduced by Bostock (2006, pp. 129-134).

330 «οὐδὲ γὰρ ἀπλῶς κατ’ εἴδος ἀκόντισθαι δεῖ εἰναι τὸν τόπον, ἄλλα καὶ κατ’ ἀριθμόν», in Phys., 588, 1-3. The distinction that Philoponus draws is between different surrounding bodies and bodies different in number, in the sense of several bodies specifying the place of one body (or, to put it differently, in the sense of the number of the surrounding surfaces each time).
place (*κατὰ τόπον*). For if Socrates is in place in terms of being always contained within the same limit of air, that is to say having particular relation to the air, then locomotion does not play any role in determining that Socrates has changed places. 331

The criticism found in the digression on place follows the same interpretative lines (*in Phys.*, 564, 14-565, 1). Again, the difficulty derives from the Aristotelian definition of place, which implies that place and what is in place are determined by the specific relation between the container and the contained that are in contact. Philoponus briefly discusses another possible objection in favour of the Aristotelian doctrine. 332 The objection runs as follows. As far as we consider the containing surface *qua* place, it is immovable, but if it is considered as surface it moves. 333 Philoponus attacks this objection by providing, again, an example of an immobile body. For instance, if Hypatia does not move around, but stands still, the place containing her—i.e. the surface of the air which is in contact with her—is not the same, because the place changes as the air is moving: there is always another part of air containing Hypatia. 334 She is all the time contained in different places, though she stands still, because the surfaces (the limits) move, or they change. Hypatia’s proper place partially changes all the time, whereas another part of her place remains at rest (I say ‘partially’, for air is not the only limit that surrounds Hypatia; her feet, for example, are also in contact with earth). A different example of Philoponus’ may also illustrate the same consequences. In the case of the edge of the heaven nearest to us, it is not always the same part (*μοῖρα*) of the heaven’s inner surface that is in contact with the same part of the contained body, even when we assume that the contained bodies stay still, because all the other heavenly things keep their circular motion. Hence, again, when the body remains at rest, the place can move, if we define place as the limit of something.

331 Additionally, Philoponus considers a possible objection in defense of Aristotle, which he in turn withdraws. This objection maintains that the container does not move *qua* place, because place is a surface, which remains still in its own right because it is also bodiless. Philoponus responds that what is under examination is not surfaces generally; instead we are discussing a specific kind of containing surface, for otherwise whatever is a surface would be a place. However, that which contains changes, for in the case of an immobile contained body the surface sometimes contains it and sometimes not, or the surface contains different bodies at different times. Hence, the surface cannot be immobile in this respect, for it changes either alone or along with the body of which it is a limit. I quote the possible objection and Philoponus’ answer to it: «οὕτως καὶ διὰ τύχου ἀνάγκη τὸ διάστημα εἶναι τὸν τόπον. εἰ δὲ τις λέγει ἀλλ' οὐχ ἔχων ἡ τόπος ἐστί κινεῖται· ἐπιφάνεια γὰρ ἐστιν, ἁκινητός δὲ ἀπὸ τοῦ ὦν ἐστιν ἐκεῖνη ἐκεῖνην ἐκεῖνην ἐκεῖνην, ἐστιν καὶ ἀσώματος; φημι πρὸς τύχο, ὅτι ὥσπερ ἀκινητός ἐστί ἐκείνης, ἐστὶ καὶ ἀσώματος; γὰρ τὸ περιεχόμενον ποτὲ μὲν περιέχει ποτὲ δὲ μή, τὸ καίναν ἐπιφάνεια τοῦ κεραυνοῦ ἐστὶν, ἄλλ' ἐπιφάνειας καὶ ἑπιφάνειας ἐστὶν ἢ μεταβάλλει; δηλον ὡς αὐτὴ ἐστὶν ἡ ἐκείνη ἡ ἐκείνη ἡ ἐκείνην ἐπιφάνειας, τὸ καίναν τοῦ περιεχομένου αὐτῇ ποτὲ μὲν περιέχει ποτὲ δὲ μή, καὶ ἠπειρόω ὡς αὐτὴ ἐστὶν ἡ ἐκείνη ἡ ἐκείνη, ἢ μεταβάλλει τῇ καίστῳ καὶ μεταβάλλει τῇ καίστῳ»,* in Phys.*, 588, 20-27.

332 The objection resembles that expressed in the third lecture on IV, 4, but they are not identical. See *in Phys.*, 588, 20-27.

333 «εἴ δὲ τις εἴποι ὅτι ἀλλ' οὕτως ἐστιν ἁκινητός ἐστιν, εἰ καί ὥσπερ ἐπιφάνεια κινεῖται», *in Phys.*, 564, 16-17.

334 Hypatia does not occur in Philoponus’ text; this is my addition to Philoponus’ example.
According to Philoponus, the Aristotelian definition of place does not ensure that place is immovable, either when the body moves or when it is at rest. Aristotle posits the immobility of place as one of the main principles of place’s nature. If one refutes this principle, then one also damages the definition of place as the limit of the containing body. The Aristotelian definition of place is unsatisfactory, for it follows from the definition that the limit of the containing body can either move along with the body of which it is the limit or even move while the contained body stands still. Philoponus’ extension-theory is much closer to saving the principle of place’s immobility. His extension-theory defines place as an empty extension which does not undergo any kind of motion. The bodies can move within the extension, but there is no way that the extension can move either along with the bodies that fill it, or by itself when the bodies are at rest. The extension-theory ensures that place qua place is immobile.

5.3 A walk from Athens to Thebes

On a sunny day in the year 517 a young Athenian, a student of philosophy, decides to walk from his house, located in the neighborhood standing opposite the theatre of Dionysus on the south slope of the Athenian Akropolis, to the public baths in the centre of the old city of Thebes. While leaving behind him the walls of Athens and passing through the low-planted land of Attica, he recalls the puzzling question of how his body traverses air, while moving from here to there. Yesterday his teacher lectured on Aristotle’s theory of place.

The young man thinks of the Aristotelian definition of place as the limit of the containing body. He decides to assume that this definition of place is right and tries to apply it to his own walk from Athens to Thebes. So, he ruminates on his body traversing the air. It happens that particles of air yield up their own place to his body (ἀντιπαραχωρεῖν). According to the definition, what is yielded should be the limits of particles of air with his body; in other words, what is yielded is the place of the particle of air and the place of his body. Now, he is wondering, what is the limit of a surrounding particle of air that contains and it is in contact with his body? The limit should be the surface of the particle of air. The

335 Philoponus additionally disproves the view that place is the limit of the containing body, which is always in contact with what is contained in it («καθ’ ὑπὸ συνάπτειν, Phys., 212a6), and the view that the limits are coincident with the limited body («ἁμα τὰ πέρατα τῷ πεπερασμένῳ, Phys., 212a29-30; 212b27-29). Both views assert that place is coincident with what is in it in a way that raises difficulties, just as in the defence of the immobility of place. See also in Phys., 587, 30-33.
young Athenian yields up his previous place to the surface of another particle of air in every step he takes.336 But how is this possible?

Philoponus doubts that, according to the Aristotelian definition, the young Athenian can ever go out of his house; he will never reach the central public baths of Thebes. Philoponus holds that when the young Athenian moves, he yields up his place to the surfaces (limits) of air’s particles. But even if we add an infinite number of surfaces, each applying to one another, they do not produce a magnitude with depth. So, how does the body move forward?337 During the walk from Athens to Thebes the two-dimensional surface of the particle of air cannot yield places, it cannot even move, for surfaces applied one another make no magnitude in depth. What we need, in order to explain the forward motion of a body, is to have magnitudes with depth, so that the whole magnitude can cover a distance, exchanging places with another magnitude. As Philoponus puts it, it is not only surfaces that are yielded up to the moving young Athenian but the body of air that exchanged places with him.338 Place is not a surface (or a limit), for, if it were so, then the young Athenian could not move forward and reach the baths in the centre of Thebes. But if, leaving aside the surfaces, we think that a three-dimensional extension was yielded by the air to the moving body, then the progression parted because of the replacement of bodies would result in a distance of some magnitude being covered.339 Philoponus underlines the fact that two three-dimensional bodies can exchange position within the three-dimensional extension, but two three-dimensional bodies cannot exchange position within a two-dimensional place (surface).

Philoponus states that motion is a change of places and a continuous exchange.340 But the motion of natural bodies implies that the whole body moves in its three-dimensions. When bodies exchange places, they cannot exchange two dimensional places, since they have to be entirely in place—they have to fill something which is equal to their magnitude. They cannot possibly fill something such as a two-dimensional surface (i.e., the limit) of something else. Thus, the three-dimensional extension plays the role of the place in which bodies

337 Philoponus says in in Phys., 567, 22-25: ‘But if what is yielded is only a surface, and surfaces when put together make no magnitude with depth, how is it possible for the moving body to progress forwards?’, trans. Furley 1991, p. 28.
339 Philoponus expresses the same argument in two passages in the digression on the void. The first reference is part of the argument with which Philoponus shows that motion can occur through the void and in time (in Phys., 691, 9-692, 26); the second reference appears where Philoponus discusses motion through the void (in Phys., 693, 28-694, 19). The argument states that motion through the void is continuous and interruptible, but does not occur in time. In that case the walker would be in Athens and in Thebes at the same instant, and one could actually be everywhere at the same instance—which is absurd (in Phys., 692, 8-11).
exchange positions each time they move. Motion would be impossible if what was exchanged (namely the local extension) were greater or lesser than their three-dimensional magnitude. As we saw, it is impossible for motion to occur without the existence of the void (in Phys., 694, 12). Since place, namely the void, is a *sine qua non* for locomotion, obviously motion needs the concept of an empty three-dimensional space (*χώρα*), which the young Athenian traverses in order to walk from Athens to Thebes.

Up to this point the chapter has discussed Philoponus’ direct criticism of Aristotle’s definition of place. Philoponus rejects the assumption that place can be the limit of the containing body. His rejection of the Aristotelian definition of place uses various examples to show the weaknesses of Aristotle’s theory. Philoponus repudiates certain Aristotelian assumptions regarding the nature of place, such as the immobility of place and its equality to the bodies filling it. The whole refutation which he uses to demonstrate these fallacies is based on the mere fact that place as the limit of the surrounding body is identical to the surface of the surrounding body. On the other hand, Philoponus’ criticism indirectly shows the advantages of his theory of place. The three-dimensional, bodiless extension, which is ontologically different from the bodily extension and voided, escapes several of the fallacies implied by Aristotle’s definition. But let us now look at another way of repudiating the Aristotelian doctrine, namely some further complications arising from the Aristotelian definition of place, as adopted by the Peripatetic tradition.

### 5.4 The place of the heavens

The general tendency in the commentary’s digressions is to reveal absurdities which derive from Aristotle’s definition of place and his denial of the void’s existence. But apart from directly criticizing Aristotle, Philoponus demonstrates how Aristotle’s account misleads other thinkers. Here I will discuss a section of the digression on place in which Philoponus points out a specific problem arising from the belief that place is the limit of the surrounding body, in so far as it contains the contained.341 Some commentators (*οἱ ἐξηγηταί*), according to

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341 See *in Phys.*, 565, 1-567, 7. As Philoponus puts it: ‘The definition of place as the limit of the surrounding body, in so far as it contains the contained, became the cause of that confusion’, *in Phys.*, 567, 5-7. I think it necessary to add the following textual remark regarding the whole passage. Given the argument connects to a problem found in some commentators and proponents of Aristotle, I think that in Vitelli’s edition there should be a paragraph separating this argument from the previous section, which deals directly with Aristotle. For, as Vitelli edits the text, the paragraph starting in *in Phys.*, 565, 10 seems to be completely parenthetical; it is not clear that it is connected to the previous nine lines, where a new argument obviously starts with «ἕτε» (*in Phys.*, 565, 1-9). So, there should be a new paragraph in line 565, 1, from «ἕτε» onwards.
Philoponus, cannot explain what the place of the sphere of fixed stars is (ἡ ἀπλανής σφαῖρα). The question is: if nothing exists outside the universe, then what is the place of the universe? These commentators are characterized as confused and unable to state anything clearly and convincingly; they are said to shift the account in different ways all the time like those playing dice, and even to end up refuting assumptions they had accepted in the beginning. It is important to note that a discussion of the problem can be traced back to Themistius’ paraphrase of Aristotle’s Physics, on which Philoponus bases his criticism. So Philoponus’ obscure references to exegetes of Aristotle involved in the discussion of the place of the sphere of fixed stars are perfectly illuminated by Themistius’ text. Two such thinkers are Philoponus’ main targets: Eudemus, Aristotle’s pupil, and, of course, Themistius.

Let us first present the problem. Since the outermost sphere (ἡ ἐξωτάτω σφαίρα) moves in a circle, that is to say undergoes locomotion, it must be in place. But the sphere of fixed stars, according to Aristotle, is not itself in place, for nothing exists beyond the sphere, so there is nothing in which it is contained. Eudemus posits this question about the place of the heavens and replies that the stars and all the things inside the outermost body (i.e., the sphere of fixed stars, the heavens) are in its limit, in the sense that they are contained in it. These celestial bodies are said to be in place because they are in something; if we say that the parts of the whole are in a place, then the whole too is in that place. The universe is in

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342 Aristotle notoriously claims that: «ὡ μὲν οὖν σώματι ἐστι τι ἕκτος σώμα περιέχων αὐτό, τοῦτο ἐστὶν ἐν τόπῳ, ὃ δὲ μη, οὐ», Physics, 212a31-32. The problem of heavens’ place, deriving from Aristotle’s account, as well as the proposed solutions in antiquity has been examined by McGinnis (2006).

343 ‘When they try to give an account of how the sphere of fixed stars could move in place, while it is not in place, they confuse everything rather than saying something clear and convincing; […] but they are just like those who play at draughts, altering their argument differently each time and refuting in every way their original views and agreements,’ Philop., in Phys., 565, 12-14, 17-19.

344 See in Phys. paraphr., 119, 17-121, 20. This is also affirmed by two comments within the running commentary. Both of them are found in the one and only lecture on Physics IV, 5, first, where Philoponus explicitly refers to the very same problem and to the way the exegetes conceive of it (in Phys., 594, 14-28), and, second, where Philoponus names Themistius and his way of dealing with the problem (in Phys., 595, 18-597, 4). In addition to these, the same discussion is repeated in a comment of the λέξις section, this time without naming Themistius (in Phys., 600, 25-602, 5). However, McGinnis (2006, pp. 148-151) seems to disregard the role of Eudemus and Themistius in Philoponus’ attack against the Aristotelian tradition.

345 See in Phys., 565, 21; 566, 7-8; 594, 15; 600, 26; 600, 28; 601, 15.

346 It seems that Alexander of Aphrodisias’ exegesis is absent. Alexander claimed that the parts of the sphere of fixed stars are not continuous to the whole of the sphere of fixed stars; therefore the whole sphere does not undergo locomotion because its parts do. See Rashed 2011, pp. 46-47 and fr. 65-78.

347 Philoponus follows exactly the same aporia as expressed by Themistius. See in Phys., 565, 8-9.

place in regard to its parts. Eudemus’ suggestion is based on the plurality of meanings that the expression ‘in place’ allows.

Themistius also was puzzled by this issue. His exegesis refers to the Aristotelian distinction between being potentially (κατὰ δύναμιν) in place and being actually in place (κατ’ ἐνέργειαν). He asks whether the universe falls under the category of the things that are potentially in place or under the category of those that are actually in place. Aristotle’s answer is that the universe is in place actually and accidentally (κατὰ συμβεβηκός), just as the soul is. Themistius worries that Aristotle contradicts himself, because, on the one hand, Aristotle seems to argue that ‘accidentally’ is identical to ‘partially’ (that is to say, the universe is accidentally in place because its parts are in place), but, on the other hand, when Aristotle argues that nothing is in place in the same sense that something is in itself, he seems to accept that something is in itself in respect of its parts (if the parts of the whole are contained in it), without considering this a case of being accidentally in something.

Themistius attempts to avoid this inconsistency by saying that Aristotle uses the term ‘accidentally’ (κατὰ συμβεβηκός) in a loose sense instead of using the expression ‘by virtue of something else’ (κατ’ ἄλλο). So it is not problematic to assume that the universe is in place accidentally, since its parts are in place, because the parts of the universe are in contact, and they contain each other, and they undergo kinds of motion—the celestial spheres are an example of this. According to Themistius, Eudemus’ understanding of the problem seems to be right, for both explicitly hold the view that the heavens should be in place if their parts are in place. If Themistius were asked the place of the heavens, his answer would be that the outermost sphere in its inner surface is in place because it is in contact with the surface of Saturn, for in some way the heavens are contained by the surface of Saturn. Nevertheless, the problem remains that the outer surface of the outermost sphere does not entirely share a place, since there is nothing outside of it that can contain it.

Philoponus disagrees with the assumptions that the heavens are in place because their parts are and that the place of the heavens is the surface of Saturn’s sphere, which is immediately in contact with them. He structures his criticism in a twofold manner: first (A), against those who believe that the place of the sphere of fixed stars is the surface of Saturn’s sphere, and, second (B), against those who claim that the sphere of fixed stars is in place because its continuous parts are in place. Moreover, Philoponus shows that each of these two

350 Physics, 212b3-13.
351 «ἐγὼ δὲ ἀπορῶ, πῶς ὁὕ του μόχοιτο ἐν πρὸς ἀὑτῶν», in Phys. paraphr., 120, 21-22.
352 The whole argument takes up the discussion in Aristotle’s Physics, 210a25ff.
views refutes some Aristotelian points, and he adds his own objection to each of the two views.353

Let us begin with the first part, (A). If we accept that the place of the sphere of fixed stars is the convex (ἡ κυρτή) surface of Saturn’s sphere, then we refuse to accept the Aristotelian views (i) that place is outside of what is contained in it and (ii) that there is equality between place and what is in place.354

As far as the first point (i) is concerned, Aristotle does not explicitly make this statement, as Philoponus phrases it, nor do we find it in the list of the common characteristics of place presented in the Physics.355 Nevertheless, it derives from the Aristotelian doctrine of place. All things that are in place, according to Aristotle, are contained in it; all things are contained in the limit of the surrounding body. The surrounding body and its limit cannot be in the thing which is contained, but must be outside of it. Now, if one asserts that the convex surface of Saturn’s sphere (which is part of the universe) is inside the universe, how can it possibly be the place of the sphere of fixed stars? Philoponus’ exact point here needs further investigation. To begin with, presumably, if place is an extreme part of the heavens,356 which is in contact with the moving body, the heavens themselves cannot be contained in place; at least not in the same sense as Aristotle’s conception of ‘containing’ as regards the place that every natural body has. Furthermore, as Philoponus points out, the convex surface of Saturn’s sphere, with which the heavens are directly in contact, is not the limit of the surrounding body in that sense—i.e., something that contains the heavens—since it is not external to it. In this case, place is no longer the limit of the surrounding body insofar as it contains something; Eudemus and Themistius claim that the heavens must be in place because of something inside them—i.e., a part of the heavens, for example, the convex surface of Saturn’s sphere—but, according to Aristotle, this is not the primary way of ‘being in place’.357 The primary sense of ‘being in something’ is something ‘being in place’, as for instance water is in a vessel. The vessel is not in the water because each part of the water is in place (i.e., in the vessel). If that were true, then we would have to deal with the circular problem of the chicken and the egg: which of the two comes first? ‘Being in something’ as the whole is in its parts constitutes a different category of ‘being in something’. In addition, the primary sense of ‘being in place’ means that something is directly contained by something outside which is in contact with it. Hence, the Aristotelian common characteristic

355 Physics, 210b32- 211a6; 212b22-30.
356 This is taken from Aristotle: «τοῦ οὐρανοῦ τι τὸ ἐσχατον», Phys., 212b18-19.
357 Physics, 210a14-24.
of place—that place has to be outside of what is contained in it—is refuted by the interpretations of his exegetes.

The way Aristotle builds on the notion of «περιέχειν» could also raise a further complication. Aristotle claimed in the *Physics* that the heavens are not place, but rather that place is something extreme to the heavens and something in contact with the moving body; for that reason, earth is in the water, water is in the air, air is in the ether, and ether is in the heavens.\(^358\) If this is true, then we cannot say the same thing, if we put it the other way round—i.e., we cannot say that the heavens are in the ether, ether is in the air, air is in the water, and water is in earth. This is for three reasons. First, because the notion of «περιέχειν» should be defined differently—i.e., not in the way Aristotle’s definition of place implies; second, because we would have to commit ourselves to the claim that the heavens are place, a claim that Aristotle denies; and third, because ether should be the place of heavens—i.e. ether should be outside of the heavens—and, moreover, we could not determine the place of the earth, for there would be something beyond the centre of the universe, which is earth’s place.

The second point (ii), regarding the equality between place and the contained body, is also refuted by Themistius’ and Eudemus’ interpretations. The convex surface of Saturn’s sphere cannot be totally equal to the heavens. It might be suggested that it is the surface of the heavens that is equal to the surface of Saturn, but Philoponus would reply that surfaces cannot be equal to the three-dimensionality of the universe. The two dimensions of Saturn’s surface cannot be equal to the three dimensions of the heavens. According to Philoponus, if we endorse the exegesis of Themistius (or Eudemus), we cannot meet the necessary condition of Aristotle’s account of place that place should be equal to the contained body.

Philoponus also expressed a worry concerning the view that the place of the sphere of fixed stars is the convex surface of Saturn’s sphere. Suppose that we accept this assumption. One consequence will be to commit ourselves to the idea that the very same thing, namely the sphere of Saturn, in respect of the same thing, namely its own convex surface, it is both the place of the sphere of fixed stars and is in place because of the sphere of fixed stars. The objection is that it is impossible for the same thing to be the place of another thing and to have as its place that other thing. Philoponus draws an analogy to the relationship between father and son in order to explain his argument. It is impossible to say that a man is both father and son of the same man.\(^359\) The point is that the relationship between place and what is in place implies that I cannot be the place of my surrounding body and have as my place

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\(^{358}\) *Physics*, 212b18-22.  
\(^{359}\) *in Phys.*, 566, 3-6.
that surrounding body whose place I am. However, a Peripatetic philosopher, who accepts
Aristotle’s definition of place, cannot endorse view (A) because it presupposes a different
conception of the primary sense in which bodies are in place. Aristotle explicitly
distinguishes between ‘being in place’ and ‘being in something’ as the whole is in its parts.

The second assumption (B) of Themistius’ interpretation is that the sphere of fixed
stars is in place because its continuous parts are in place (and each part is contained by its
surrounding parts). First (i) Aristotle never claimed that the parts of the continuous are in
place by virtue of themselves, but rather that they are accidentally in place because the whole
is in place. The commentator does not provide any demonstration of how this objection
works against Themistius’ assumption. A possible way to present the first point may be the
following. According to Philoponus, Aristotle states that the parts of the whole are in place
accidentally because the whole is in place. In the case of the universe as a whole, the parts
of the universe are in place accidentally because the whole universe is in place; but the
inverse is not true, as the commentators of Aristotle imply with their argument. Aristotle does
not say that the whole is in place because its continuous parts are in place accidentally. So
Eudemus and Themistius should admit either that the universe has a proper place (implying a
surrounding body that contains it and only it) or that the universe is in place accidentally
because its parts are in place. Both options are unacceptable within the framework of the
Aristotelian definition of place.

The second assumption (B) of Aristotel’s exegetes also refutes (ii) the Aristotelian
claim that place is not something of the thing, as was stated in the Physics. Philoponus
argues that in the case of a whole composed of parts, each of the parts contributes to the
whole. This suggests that the parts are something of one another because the parts each
contribute to the very being—i.e., to the whole—and if one of the parts is separated from the
whole, it runs the risk of ceasing to exist. The objection asserts that if the whole is in place
because its continuous parts are in place, then place becomes something of the parts, and

360 See Themistius, in Phys. parapr., 120, 28-121, 4.
361 in Phys., 566, 10-12.
362 The reference here is to Aristotle’s Physics 212b3-13. Aristotle says that when something is continuous, its
parts are «κατὰ δύναμιν» (potentially) in place and that the parts of those that accidentally are in place—just as
is that case for the soul and the heavens—are somehow in place («τι γὰρ μόρια ἐν τόπῳ πως πάντα», Physics,
212b12-13). Simplicius notes that the proponents of Aristotle’s view claim that the whole is in place by itself
and the parts are in place accidentally («οι μὲν γὰρ τὸ πέρας τοῦ περιέχοντος τόπον εἶναι λέγοντες τὸ μὲν ὅλον
καθοτό φαινον ἐν τόπῳ, τὰ δὲ μόρια κατὰ συμβεβηκός, ἐπειδή οὐδὲ περιέχεται ταῦτα ὑπ’ αὐτοῦ προσεχῶς», in
Phys., 575, 4-6).
363 «μηδὲν τοῦ πράγματος», Physics, 211a1.
364 in Phys., 566, 12-17.
hence something of the whole. Thus the position contradicts the Aristotelian claim that place is the limit of the containing body, which is not something of the thing that is in place.

The discussion of the place of the sphere of fixed stars ends up with a further objection from Philoponus. He posits the question: what places do the parts of the sphere of fixed stars yield to one another during their motion? If the containing parts are the place of each part of the sphere of fixed stars, and if it is true to say that, when the whole sphere moves, the parts move yielding, in turn, their proper places to one another, then it is necessary that the heavens are divided and that different parts then take up a different relationship, both with respect to the whole and themselves. But this is impossible, for the heavens are indivisible; it is also impossible either that the northern part of the heavens comes to be in the south part of it or that it appears to be somewhere else. Thus, this cannot happen to any of the beings that undergo generation and corruption. It is crucial, according to Philoponus, to distinguish between the cases where a thing is in something, as being in place, and the cases where a thing is in something, as being in a whole. Themistius’ explanation presupposes (based on Eudemus’ interpretation) that being in place and being in a whole are co-extensive; consequently, when we claim that the parts of the whole are the places of one another and the place of the whole, we are actually claiming that the parts are so separated as to be the containers of other parts. But the parts of a whole should not be separate, for then these parts will not be the parts of a whole, but rather they will be distinctive from the whole. When the heavens rotate, or when the parts of the heavens move, because the parts are places of one another, the parts should yield their proper places to one another and occupy different places, rather than their own; the parts should now take up different relationships both with respect to the whole and each other, and that is impossible, since the heavens are indivisible. Inasmuch as the exegetes believe that the place of the parts is the containing parts round about (περιξ) and they consider the parts to be in the whole, as if they were in place, then the heavens cannot be in place in any respect.

Philoponus thinks that the problem cannot be solved and that the explanations provided by Eudemus and Themistius are insufficient and cause additional confusion. The problem of heavens’ place remains. If the sphere of fixed stars is in place, then it must be contained by something external to it, as the Aristotelian definition of place requires. If not, then obviously the definition of place as the limit of the surrounding body in respect of

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365 See *in Phys.*, 566, 17-26. Philoponus observes some exceptions, for instance, water, air, and melttable things composed of these, like gold, lead, wax, and similar (*in Phys.*, 566, 27-29).

366 See Aristotle’s *Physics*, 211a29-31; 210a15-17.
containing the contained cannot be true. Philoponus contributes nothing to the discussion of the place of the heavens, in the sense that he does not express any positive solution to this problematic issue, with which the Peripatetic tradition dealt.

After going through the criticism that repudiates the Aristotelian definition of place in various ways, I would like to draw attention to Philoponus’ account of place and the way it avoids the problems which arise from the Aristotelian definition of place. Philoponus’ extension-theory ensures that place is equal to what is in place, since both local and bodily extensions are three-dimensional. Bodies come to fill a place equal to their dimensions. The proper place of each body has nothing to do with the limits of their surrounding bodies. Of course, we can locate a body by using the other bodies around it, since its position within the extension is determined by the limits of the surrounding bodies. Philoponus does not accept that a body, say a tree, is contained by the limits of the surrounding bodies, in the sense that the «περιέχειν» does not define the place of the body—it rather defines its position in relation to other bodies.

Bodies occupy this position in the extension now, and after a while they can occupy another position in the extension. Bodies change position when they move, and exchange positions with other bodies. The local extension does not move in the case of the replacement of bodies (ἡ ἀντιμετάστασις τῶν σωμάτων). Bodies move within the local extension, which is immobile. Philoponus does not attach the local extension to bodies; this view affirms the ontological difference between the extension and bodies and avoids the problem of moving places around the universe. In other words, according to Aristotle’s definition, in many cases the place of a body moves when bodies move, whereas, according to Philoponus’ definition, bodies change place when they move, but place remains immobile.

Locomotion of bodies needs the replacement of bodies. In order to advance further in place, I just need to traverse local extension and exchange positions with another body that is three-dimensional; other bodies do not determine my motion as if they were places with two-dimensional limits (surfaces). The extension-theory states that I can move only when I occupy a position as a three-dimensional whole; at the same time, I am forcing other bodies immediately around me to move as wholes, not as two-dimensional surfaces. Philoponus guarantees in this way that the motion of bodies can actually happen within the local extension, in contrast to the Aristotelian definition of place that could lead to absurd assumptions, for instance bodies that cannot move from one place to another, since it is surfaces that yield.
Moreover, nothing forces Philoponus to accept that place is external to the bodies. If he did, he would have to endorse the view that the heavens need something external in which to be contained in order to be in place. This would definitely lead to an infinite regress of external places. Bodies are not contained in place in Aristotelian terms. Philoponus defines the relation between place and what is in place in a different manner. The concept of «πλήρωσις» illustrates this relationship. Place contains bodies, when it is defined as the limit of the containing body. But bodies, for Philoponus, are not contained in between other bodies nor are they in place by virtue of being contained by other bodies; bodies occupy a place which is empty in its own right, but always filled by the body. The universe does not need to be contained by something in order to be in place; it fills the extension in its own right, which is actually the entire space in which it exists and is placed (as well as all the bodies of the universe).

Some philosophers thought, Philoponus says, that if the empty extension exists, then it must be infinite.\(^{367}\) He represents their argument in the following manner. If the extension is three-dimensional, then that extension must have a surface; furthermore, if the extension has no surface, and it extends up to the furthest surface of the heavens, then it might be possible that the extension can keep extending outside the universe \textit{ad infinitum}.\(^{368}\) Philoponus’ view draws on the impossibility of an infinite extension, in the sense that there cannot in actuality be any extension not occupied by body; therefore, the extension has to extend as far as the universe extends. The universe occupies a limited extension (limited in accordance with its own three-dimensionality), and there is nothing to prevent us from thinking of the local extension as having an equal surface to the surface of the universe.

\[^{367}\] The reference is unclear. I speculate, however, that this could be an objection to Epicurus, who thought that both body and space are infinite in extent: \textit{«εἰ τε γὰρ ἦν τὸ κενὸν ἀπειρον, τὰ δὲ σώματα ἄφθροσεν, οὐδὲν δὴ ἔμενε τὰ σώματα, ὀμ' ἄφθροι κατὰ τὸ ἀπειρόν κενὸν διαισασάμενα, οὐκ ἔχοντα τὰ ἄφθρον κατὰ τὰς ἀνακοπάς» \textit{Epist. Herod.} 41-42. According to Simplicius (who relies on Aristotle), Democritus too appears to claim an infinitely extended place (\textit{in De caelo}, 594, 33-595, 3). I also believe that the target may be the Stoics, who considered the extracosmic void to be infinite since there is nothing further limiting it (\textit{Stobaeus, Elogiae}, 1, 161, 8 (=\textit{SVF}, II, 503): \textit{«τὸ μὲν οὖν κενὸν ἄπειρον εἶναι λέγεσθαι· τὸ γὰρ ἐκτὸς κόσμου τοιουτοῦ εἶναι, τὸν δὲ τότον πεπερασμένου διὰ τὸ μηδὲν σώμα ἀπειρον εἶναι»; Atrius Didymus, fr. 25 (Diels, 1879); Simplicius, \textit{in De caelo}, 284, 28). In addition, the \textit{«κεχύσθαι»} (\textit{in Phys.}, 582, 25) could be a direct reference to the Stoics, since they used the terms \textit{«χύσις»} and \textit{«ἀνάχυσις»} (\textit{SVF}, II, 619).

\[^{368}\] in \textit{Phys.}, 582, 19-583, 12.
Epilogue

This study has focused on Philoponus’ conception of τόπος. Philoponus’ strategy in the digressions of his commentary, and also in parts of his exegeses, has three aspects: he repudiates the cogency of Aristotle’s and Themistius’ critiques of the concept of local extension; he attacks the Aristotelian definition of place by showing its weaknesses and its inconsistencies with the nature of things; and, he establishes his own theory of place. The result is a valuable set of arguments regarding τόπος and a major contribution to the physics of late antiquity, which invigorated interest in place and void up to the 17th century.

Philoponus conceives of place as one of the five concomitants common to all natural beings (the others being motion, time, form, and matter), following a traditional view of place held by Alexander of Aphrodisias and Ammonius Hermeiou. That place is a concomitant common to all natural beings indicates place’s significant role in nature. Philoponus, based on this idea of the nature of place, attempts, throughout the digressions of the commentary, to provide a coherent theory of place which is compatible with nature. The conception of place as a concomitant of a natural body already entails a distinction between two things, namely the accompaniment (place) and what is accompanied (natural body). This distinction, however, is expressed in radically different terms in Philoponus’ theory of place, which wishes to redefine the relationship between place and body. Philoponus underlines the ontological difference that a bodiless extension must have from a bodily extension. This kind of difference (ἑτερότης) transposes the centre of the relationship between place and body from the concept of something contained (body) in a container (place) to the concept of filling up what is capable of being filled (i.e., local extension). Bodies fill an empty three-dimensional space which is their place; that is how place and natural bodies associate with each other.

Philoponus’ theory manages to balance between a definition of place in its own right and a definition of place with respect to natural body in reality. In my view, the ‘double’ determination of place suggests the conceptual and the sensible aspects of place. The conceptual aspect of place implies that we theoretically approach place in its own right as a three-dimensional, bodiless, immobile, and unaffected extension. This implies that place
differs ontologically from bodies and can be thought of as deprived of bodies. The sensible aspect of place reflects the reality, in the sense that we perceive bodies already filling place and moving through place (locomotion). The distinction between the conceptual and sensible aspects of place is directly linked to Philoponus’ definition of place as void. The voided place is only grasped conceptually: voided place does not occur in nature, as bodies always fill the local extension. On the other hand, we cannot comprehend how bodies fill the local extension without presupposing the notion of voided place. The void becomes inherent, so to speak, in nature because it explains the natural phenomenon of bodies being somewhere—i.e., filling a place. Bodies fill different positions within the local extension with respect to other bodies. The concept of the void should be considered as an essential feature of Philoponus’ account of place.

Philoponus sets out an alternative model for explaining the motion of bodies (either natural or forced motion, introducing an impetus theory). For Philoponus, the comprehension of the replacement of bodies (ἀντιμετάστασις τῶν σωμάτων) in nature, which amounts to a redetermination of locomotion, is linked to the concept of place. The local extension must be bodiless, three-dimensional, and by nature capable of receiving natural bodies. The three-dimensionality of place, according to Philoponus’ account, guarantees the equality between place and the bodies filling it; hence it ensures the replacement of bodies. The replacement, however, requires a notion of place which is not an impediment to the bodies’ exchange of places. Therefore Philoponus considers the voided place ontologically prior to the locomotion of bodies: bodies are able to move because of their replacement within the local extension.

With his extension-theory Philoponus not only tries to establish a coherent view of place, but also displays his cosmological views on the order of the universe. Bodies prevent the emptiness of the local extension, so far as possible, even behaving contrary to their nature in order to achieve this. Taking for granted that the voided place cannot exist in actuality, Philoponus asserts that the demiurge ordered the universe in such a way as to make possible a place always filled by bodies. This implies, for Philoponus, that the position of each body in the local extension also reflects the body’s perfection (τελειότης).

I have attempted to be cautious and avoid stressing the conceptual aspect of place established by Philoponus. In antiquity, a three-dimensional bodiless extension signified a mathematical entity. For instance, geometrical figures are solids (στερεὰ) and have three dimensions, but differ from natural bodies composed of form and matter. Indeed, Philoponus insists on the distinction between the three-dimensionality of place and that of a natural body. Nevertheless, how far does he go with this distinction? In contrast to those who smoothly
assert that Philoponus endorses a mathematical notion of place, I do not wish to suggest that Philoponus straightforwardly does so. Although Philoponus’ interest in mathematics is attested by his commentary on Nicomachus of Gerasa’s *Introduction to Arithmetic*, no trace of a purely mathematical conception of place can be found. Philoponus forces us to distinguish the three-dimensionality of a bodiless extension from that of a body, but I presume that his aim is conceptually to detach the local extension from the bodily extension for the sake of his argument. The purpose of this distinction is to explain the way natural bodies are in place, not to build up a mathematical conception of place. Philoponus constantly points out that to define place in its own right does not mean that place, namely the voided extension, can ever appear in actuality. Place is the extension already filled by bodies.

The conceptual aspect of place is introduced by Philoponus in order to explain natural phenomena, such as the replacement of bodies (i.e., locomotion), the equality between natural body and the place it fills, the impossibility of having two bodies in the same place, and the immobility of place. The fascinating narration of the discussion between Ammonius Hermeiou and Philoponus at the end of the digression of place reinforces my claim (*in Phys.*, 583, 13-585, 4). Philoponus clearly shows that he is not interested in proposing a theory of place that exceeds physics when he argues for a local extension filled by the natural bodies. The difference (ἕτερότης) between place and the natural body suggests neither a geometrical, nor a mathematical, nor generally any unnatural (metaphysical) notion of place, but rather reflects the necessary ontological differentiation of place from bodies within the scope of nature’s procedures.

The digression on place and, partly, the digression on void deal with Philoponus’ attack on the views held by the Peripatetic tradition. Philoponus scrutinized, firstly, Aristotle’s definition of place as the first immobile limit of the containing body, with regard to containing the contained, and, secondly, the argument against the definition of place as extension. Philoponus insists that Aristotle contradicts himself and refutes his own principles regarding place; moreover, Aristotle’s definition of place is counter-intuitive and to a great extent fails to express the truth about the nature of place and the locomotion of bodies. I believe that Philoponus expounds an effective critique of Aristotle, but that at the same time he endorses all the fundamental principles set out by Aristotle: the kind of extension that is defined as the place of natural bodies is immobile, bodiless, and unaffected; it does not belong to the body; it is equal to the body filling it; and it does not perish, whereas bodies do. This kind of extension substitutes for the conception of place as the limit which contains the contained, as implied by Aristotle’s theory and its proponents.
This book turns attention to Philoponus’ definition of place and the related theory he subsequent develops. As well as offering a philosophical commentary on the topic, I hope that the book opens the ground for further discussion of other issues related to Philoponus’ theory and its position in the history of science. For instance, I have not analyzed the main body of Philoponus’ arguments, which attack Aristotle’s views on the impossibility of motion through void. It is important to note that Philoponus’ arguments were either literally used by later thinkers struggling with the difficulties implied by the existence of void or indirectly affected them. There are many aspects of the transmission of Philoponus’ arguments that still need to be clarified. But I would like to conclude by addressing the question of the origins of Philoponus’ theory. Throughout the book I have consciously refused to touch upon Philoponus’ Platonic or Aristotelian identity, mainly because he himself gives no evidence on the question. Nevertheless, it seems that Philoponus is presenting a re(de)defined theory of place of Platonic origin. Sources, such as Syrianus and Simplicius, seem to attest a theory of place, attributed to some Platonists, that has several common characteristics with the theory of Philoponus. If this proves to be true, then Philoponus stands in the Platonic tradition with a steady Aristotelian outlook. His extension-theory of place may reflect a long Platonic tradition concerning τόπος, while examining the place of natural beings by remaining loyal to the Aristotelian conception of the study of nature.
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Note: Unless differently stated all the texts cited or quoted of Alexander of Aphrodisias, Themistius, Syrianus, Ammonius Hermeiou, Ioannes Philoponus, Asclepius, Simplicius, Olympiodorus, David, Elias and Stephanus refer to their editions in the series Commentaria in Aristotelem Graeca, Academiae Litterarum Regiae Borussicae (CAG). For all the references to Galen’s works (or Ps-Galen’s), see Kühn C. G. (ed.) (1821), Claudii Galeni Opera Omnia, Medicorum Graecorum opera quae extant, vol. 1-20, Leipzig.

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