

SERGEY TROSTYANSKIY

SIMPLICIUS ON ARISTOTLE'S PARADOX OF THE NOW

Abstract

This article analyzes Simplicius's interpretation of Aristotle's theory of the now, a central issue for understanding Aristotle's philosophy of time. It first examines Simplicius's interpretation of Aristotle's account in *Physics* IV and then his reassessment of the same problem in *Physics* VI. It argues that Simplicius's interpretation is deeply informed by Neopythagorean thought, especially in his account of the sameness of the now, while at the same time showing that he remains, by and large, faithful to Aristotle by resisting the introduction of vertical differentiations or phases of the now. The article further shows that Simplicius's interpretation exemplifies the distinctive philosophical profile of the ancient commentary tradition, in which exegesis and philosophical synthesis are inseparable. Finally, it identifies Simplicius's assessment of Aristotle as a major source for influential modern interpretations of Aristotle's theory of time, including both those that develop his reading and those that react against it from a more orthodox Peripatetic perspective.

Keywords

Simplicius, Aristotle, Pseudo-Archytas, Physics, the Now

Author

Sergey Trostyanskiy
The City College of New York, USA
strostyanskiy@ccny.cuny.edu
<https://orcid.org/0009-0001-5604-8922>
Scopus Author ID: 56938701600

Introduction

Simplicius is without doubt one of the greatest and most significant commentators on Aristotle's *Physics*.¹ His huge impact on modern scholarship can hardly be overestimated. There are several targeted studies of Simplicius's commentaries on Aristotle's *Physics* in general and on Aristotle's theory of time in particular.² The primary focus of investigations among modern scholars, and not unexpectedly, is Simplicius's *Corollaries on Place and Time*, as it contains an enormous amount of doxographic material along with Simplicius's own conjectures about the subject matter. On the other hand, there are a handful of studies on Simplicius's commentary on Aristotle's *Physics* IV and VI.³ This article aims to fill in this gap by subjecting to scrutiny Simplicius's attempt to shed light on Aristotle's theory of the now, which is of primary significance for understanding Aristotle's philosophy of time. I firstly consider Simplicius's assessment and interpretation of Aristotle's theory of the now in *Physics* IV. This discussion paves the way for a thorough analysis of Simplicius's reassessment of this issue in *Physics* VI.

¹ Simplicius is the principal ancient commentator, gathering together in his immense *oeuvre* the entire Greek exegetical tradition, including the commentary of Alexander of Aphrodisias, which he cites hundreds of times. It is therefore the basis for understanding physics in the Greek world and in the humanistic age. According to Hermann Diels, Simplicius at his best, and especially in his initial summaries, takes inspiration from Alexander. Diels also draws from this an explanation for the loss of Alexander's commentary: late antiquity could not bear the burden of transcribing two works of such weight. From this we can infer that, for Diels, the difference between the two works is not of value; in fact, from his point of view, what is valuable in these commentaries is the doxographical part, from which he takes material for his collections, *Doxographi Graeci* and *Die Fragmente der Vorsokratiker*. The advantage of preserving Simplicius's commentary rather than Alexander's is chronological: the tradition has preserved the more recent, and in some ways more up-to-date, of the two works. But what this updating consists of deserves consideration. Evidently, the relevance of Aristotelian theories to mathematics raises the issue of their interaction with the research of the Pythagorean school, and this school itself seems to have an important weight in the exegesis of the parts of the *Physics* examined in this essay.

² Sonderegger (1982); Golitsis (2008); Menn (2022); Golitsis and Hoffmann (2023).

³ See, e.g., Stevens (2021); Golitsis and Hoffmann (2023). In addition: Seissl (2024); Sorabji (1992) and Sorabji (1989). This list is by no means exhaustive.

My intention in this article is to establish that Simplicius's interpretation of Aristotle's theory of the now is driven by Neopythagorean thought and that his interpretative twist regarding the sameness of the now clearly draws on the Neopythagorean philosophical background to support this interpretation. A clearly accentuated connection between Simplicius and Neopythagorean thought is often acknowledged in scholarly literature; and in this article, I endeavor to provide further evidence for such a connection. Yet I also show that Simplicius by and large remains faithful to Aristotle by avoiding the possibility of imposing the idea of the now's vertical differentiations and phases. Additionally, I suggest that Simplicius's reassessment of Aristotle's theory should be seen not merely as a commentary, but also as a new and unique synthesis that leans towards Neopythagoreanism, which can be regarded as a theory in its own right.

Furthermore, I aim to show that various modern commentaries on Aristotle's theory of time are either inspired by or derive directly from Simplicius's assessment of Aristotle. This concerns not only those modern accounts which draw on Simplicius's interpretation but also those that go against it, taking the path of a more orthodox Peripatetic approach to Aristotle's theory; for these, too, have their main source of inspiration in Simplicius's doxographic account and analysis of the points of view which compete with his own.

1. Aristotle's Now: Problems and Solutions

Aristotle in *Physics* IV 10 introduced the paradox or dilemma of the now. This dilemma revolved around the issues of sameness and otherness. Is the now always the same or ever different?⁴ The dilemma was framed as a series of pre-scientific arguments that sought to furnish apparent proofs of the thesis that both horns of the dilemma contain unviable ramifications and must

⁴ Aristotle admits that it is hard to say whether the now remains one and the same or whether it is always other and other (ἔτι δὲ τὸ νῦν, ὃ φαίνεται διορίζειν τὸ παρελθὸν καὶ τὸ μέλλον, πότερον ἓν καὶ ταῦτόν αἰεὶ διαμένει ἢ ἄλλο καὶ ἄλλο, οὐ ῥάδιον ἰδεῖν). Arist. *Ph.* IV 10.218a8-10.

be rejected because they jeopardize the now's knowability and existence.⁵ If the now exists and is knowable, it must be either always the same or ever different. Yet the now can neither be always the same nor ever other and other. So, if A, then either B or C. But neither B nor C. Therefore, not A.

Aristotle regarded paradoxes as stumbling blocks that need to be addressed to clear the path to knowledge. His solution was that the now is both always the same and ever different but not in the same sense. So, if A, then B and C; but A; therefore, B and C. The now, he argued, is the same insofar as *ὁ ποτε ὄν* is concerned,⁶ yet it is always other and other in being and *logos*.⁷ It should be noted in this context that Aristotle's approach to the paradox clearly indicated that he thought it needed a special treatment. This included the possibility of bypassing standard analytic tools (set out in other treatises

⁵ According to Aristotle, the first horn of the dilemma states that if the now is always different, then the now which formerly was must have ceased to be (*τὸ δὲ νῦν μὴ ὄν πρότερον δὲ ὄν ἀνάγκη ἐφθάρθαι ποτέ*). *Ibid.* 218a11-16. This horn contains another dilemma, whose horns also contain impossible ramifications since the prior now can neither have ceased in itself (since it then existed [*οἷόν τε διὰ τὸ εἶναι τότε*]), nor in another now since one now cannot be contiguous to another (*ἔστω γὰρ ἀδύνατον ἐχόμενα εἶναι ἀλλήλων τὰ νῦν*). Yet if it did not cease to be in the next now (*ἐν τῷ ἐφεξῆς*), but in another, it would then be together (*ἅμα*) with the infinite nows (*νῦν ἀπείροις*) between the two (*ἐν τοῖς μεταξύ*), which is impossible. *Ibid.* 218a16-21. These are the objections against the assumption that the now is always different. Aristotle then subjects to scrutiny the contrary assumption that the now is always the same since no limited divisible thing has a single limit (*οὐδενὸς γὰρ διαιρετοῦ πεπερασμένου ἔν πέρας ἔστιν*) and since the now is a limit (*τὸ δὲ νῦν πέρας ἔστιν*) and time delimited (*πεπερασμένον*). *Ibid.* 218a22-25. This objection concerns time itself. Then he adds a further qualification to his thesis and says that the imposition of a single now would necessarily lead us to an impossible conclusion also in respect to things in time. Thus, what is before and what is after would be in this same now and things which happened years ago would be together with what has happened today. Consequently, nothing would be before or after anything else (*καὶ οὔτε πρότερον οὔτε ὕστερον οὐδὲν ἄλλο ἄλλου*). *Ibid.* 218a25-30. Hence, it appears that the now can neither be ever other and other, nor always the same.

⁶ For recent studies of Aristotle's *ὁ ποτε ὄν*, see Lederman (2014), Coope (2005), and Brague (1982).

⁷ We should immediately note that *λόγος* is a homonymous appellation which in this context (and in its most generic sense) means account or description but can also signify a statement of being, among many other things. The now is thus always different (*ἕτερον*) insofar as its being (*τὸ δ' εἶναι ἕτερον*), or its being in succession or "in one and then in another" (*ἢ μὲν γὰρ ἐν ἄλλῳ καὶ ἄλλῳ, ἕτερον*) and its account/description (*τῷ λόγῳ δὲ ἄλλο*) are concerned, and also *qua* being a limit (*πέρας*). Moreover, the now seems to be always different *qua* being an end and a beginning of time. Arist. *Ph.* 222b1.

to solve the issues of sameness/difference) in order to handle the issue at stake; allowing the use of taxonomies whose meaning is not clearly articulated; the choice of proceeding analogically in giving scrutiny to the now; the possibility of perhaps overriding the rules of scientific argumentation established in his *Analytics* (including that of genera crossing), etc.

Aristotle's solution, along with his theory of the now in Book IV, as subtle as they are, were not immediately clear, nor were they fully persuasive. There were many reasons for potential confusion. For instance, Aristotle's approach to the issue through analogical reasoning and the choice of taxonomies to solve the paradox/es seemed to open different and diverging interpretative paths, and that it was not immediately obvious which path should one take to make sense of Aristotle's theory of the now. On the other hand, in Book VI Aristotle revisited the topic of the now while setting out his theory of indivisibles and continuum. In this book Aristotle no longer relied on analogical reasoning but proceeded syllogistically by offering a series of theorems, furnishing them with direct proofs and supplementing these by indirect *reductio* proofs. Yet it remained somewhat unclear whether the two accounts (i.e., in Books IV and VI) were fully compatible and how they could be synthesized into a cohesive whole.

Simplicius's interpretative endeavor aimed to clarify Aristotle's statements in order to make his theory comprehensible to his contemporaries. Simplicius's initial and arguably less successful attempt to make sense of Aristotle's theory as it was stated in Book IV should be here reviewed along with his more intricate analysis in the commentary to Book VI. My survey of Simplicius's commentaries, as sketchy and preliminary as it is, will not only allow us to see his reassessment of Aristotle's theory as a synthesis that leans towards Neopythagoreanism but will also highlight the significance of Simplicius's interpretative endeavor for contemporary scholarship and the enormous impact it has had on our understanding of Aristotle.

2. *Reassessing Aristotle's Terminology in Book IV*

It appears that Simplicius was quite perplexed by Aristotle's terminology in *Physics* IV. In particular, where the now was concerned, the key phrase, ὁ ποτε ὄν, did not seem immediately intelligible to him. So, right from the beginning he decided to omit it. His approach was two-fold. On the one hand, Simplicius adapted Aristotle's now to Neopythagorean thought by reconceptualizing ὁ ποτε ὄν as substrate: the now can underlay change and receive different forms, e.g., being prior and then posterior, one and then another. Seen in this way, the now participated in incomplete actuality, switching the modality of being and obtaining temporal properties.⁸ I will soon clarify in what sense the now may be understood as having temporal properties. On the other hand, Simplicius interpreted the phrase in light of Pseudo-Archytas, reframing it by finding its equivalent in Aristotle's standardized taxonomy (i.e., sameness/otherness in genus, species, number, etc.) and unlocking its meaning through Neopythagorean theory.⁹

⁸ Sambursky and Salomon (1971) n. 2, p. 105: "for the Now as a subject is an identity, but it accepts different attributes."

⁹ The identity of this Neopythagorean writer remains mysterious. Various manuscripts and extant fragments preserved by late antique doxographers sought to demonstrate that the author was a contemporary of Plato and that he had an enormous impact on Aristotle's thought. Late antique thinkers by and large endorsed his treatises as authentic works of the historic Archytas. There were also, however, some doubts about their authenticity. For instance, Themistius pointed out that the treatises were pyrographic. There seems to exist a unanimous agreement among modern scholars that the treatises belong to the Doric Pythagorean pseudepigrapha. It is likely that they were written in the first century BC. The issue of Pseudo-Archytas's identity has some further complications, as it is not altogether clear whether what has been handed down to us as Archytan pseudepigrapha has a single author. In the present article, the designation Pseudo-Archytas is used to refer to the authorial figure underlying the pseudepigrapha as transmitted by the late antique tradition, without distinguishing between the Doric fragments preserved especially by Simplicius and the recension transmitted in the Ambrosian manuscript of *On the Whole System*. This usage follows the prevailing editorial and interpretative practice inaugurated by Thesleff and Szlezák and implicitly adopted in recent studies by Ulacco, who consistently treats the Simplician fragments and the Ambrosian text as parts of the same philosophical corpus and discusses them as works of a single pseudonymous author, without raising the question of separate authors. Whether the various Archytan treatises ultimately derive from one historical writer or from several closely related authors working within the same intellectual milieu remains an open question, which is not decisive for the present argument. What matters

In his commentary on *Physics* IV, Simplicius first speaks of ὁ ποτε ὄν in relation to time. The issue at stake in this context is that time is something other than change. It is change, according to Aristotle, only *qua* ὁ ποτε ὄν, whereas its being is different from change and is not change. Simplicius asserts that the meaning of ὁ ποτε ὄν is that of existence and substrate.¹⁰ Here the terms ὑπαρξίς and ὑποκείμενον appear to mean the same thing as ὁ ποτε ὄν. On the other hand, time's being or account (here, strangely, but in accord with Aristotle's statements, they are used interchangeably to feature the now's otherness) are not change.¹¹

Time then, as far as its being and account are concerned, is the before and after in change when they are divided or distinguished.¹² He then asserts that it would not be wrong to define time as the number of the before and after with respect to the flux of change.¹³ Here, a typical Neopythagorean term appears: the flow or flux of existence, which stands for change or motion at its lower phase.¹⁴ What comes next is Simplicius's assertion that Aristotle's statement about the before and after with regard to change or motion also applies to the now. "For, as he [i.e., Aristotle] said of the before and after that 'ὁ ποτε ὄν is a change, but its being is other and not change', so he has also said of the now that in substrate (τῷ μὲν ὑποκειμένῳ) it is one and the same but differs in account, in so far as one is before, the other after."¹⁵ Simplicius gives further scrutiny to the issue at stake by analyzing another expression: ὁ ποτ' ἦν and its application to the now. He maintains that "the

here is the coherence of the textual and philosophical tradition transmitted under the name of Archytas. See Thesleff (1965); Szlezák (1972); Ulacco (2016), (2017), (2020); Horky (2021). In this article I use Thesleff's critical edition.

¹⁰ καὶ τοῦτο ἐστὶν ὁ λέγει, ὁ μὲν ποτε ὄν κίνησις, τουτέστιν ἡ ὑπαρξίς αὐτὴ καὶ τὸ ὑποκείμενον. *Simpl. In Phys.* 9.712.24-26.

¹¹ τὸ μέντοι εἶναι αὐτῷ, τουτέστιν ὁ λόγος, ἕτερον καὶ οὐ κίνησις. *Ibid.* 9.712.26-27.

¹² ταῦτ' ἄρα ὁ χρόνος ἐστὶ καὶ τὸ πρότερον καὶ ὕστερον ἐν κινήσει, ὅταν διορίζηται ταῦτα. *Ibid.* 9.713.7-8.

¹³ ὥστ' εἴ τις τὸν χρόνον ὀρίζοιτο ἀριθμὸν τοῦ προτέρου καὶ ὑστέρου τοῦ κατὰ τὸ εἶναι τὸ ῥέον τῆς κινήσεως [...] οὐκ ἂν οἶμαι διαμαρτάνοι. *Ibid.* 9.716.15-18.

¹⁴ Cf. ἀριθμὸς ἐστὶ πλῆθος ὠρισμένον ἢ μονάδων σύστημα ἢ ποσότητος χύμα ἐκ μονάδων συγκείμενον. *Nicom. Intr. Arith.* 1.7.1.1-2.

¹⁵ ὡς γὰρ ἐπὶ τοῦ προτέρου καὶ ὑστέρου ἔλεγεν, ὅτι ὁ μὲν ποτε ὄν κίνησις ἐστὶ, τὸ δὲ εἶναι αὐτῷ ἄλλο καὶ οὐ κίνησις, οὕτω καὶ περὶ τοῦ νῦν εἶπεν, ὅτι τῷ μὲν ὑποκειμένῳ ἓν τι καὶ ταῦτόν ἐστι, τῷ δὲ λόγῳ διάφορον, καθόσον τὸ μὲν πρότερόν ἐστι τὸ δὲ ὕστερον. *Simpl. In Phys.* 9.721.31-35.

now is the same in respect to the substrate, for that is what ὁ ποτε ἦν means” (τὸ νῦν τὸ αὐτὸ εἶναι τῷ ὑποκειμένῳ, τοῦτο γὰρ σημαίνει τὸ ὁ ποτε ἦν).¹⁸ In the adjacent sentence Simplicius seems also to imply that ὁ ποτε ὄν and ὁ ποτε ἦν mean the same thing. In addition, he omits ὑπαρξίς and opts for ὑποκείμενον as the term co-extensional with ὁ ποτε ὄν.

Simplicius’s clarification of Aristotle’s philosophical jargon may at first glance appear random; but this is not the case. In the first place, it appears to derive from *De partibus animalium*, in which Aristotle places both terms side by side: “the substratum of blood, that which it is while it is blood is not hot.”²¹ Indeed, this is the sole instance in Aristotle’s works where the terms are placed side by side; and, for this reason, it may not suffice. Yet some of Aristotle’s phrasing suggests that ὁ ποτε ὄν may also refer to that which underlies something else. Therefore, Simplicius’s view is neither random nor arbitrary.²²

Simplicius was neither the first nor the last to introduce this interpretative thread. He indicates that Aristotle’s disciple Eudemus also used the term substrate to make sense of Aristotle’s ὁ ποτε ὄν.²³ Philoponus took the same path and also interpreted it the same way.²⁴ Yet it seems that Simplicius was the first to approach Aristotle’s ὁ ποτε ὄν in a systematic and coherent way. At least, I have not found an earlier account of the issue in which there is an attempt to justify this interpretation and to explain the rationale behind it.

More importantly, Simplicius’s approach to this issue is an attempt to place Aristotle’s theory into a different framework, since his linguistic twists are apparently loaded with specific ontological and epistemic commitments.

¹⁸ *Ibid.* 9.721.30-31.

²¹ τὸ δ’ ὑποκείμενον καὶ ὁ ποτε ὄν αἷμά ἐστιν, οὐ θερμόν. Arist. *Part. an.* 649b23-24. See Rashed (2005) pp. xcii-xcvii.

²² See Giampaolo (2012) pp. 71-92.

²³ Καὶ ὁ Εὐδήμος δὲ τὰ αὐτὰ περὶ τοῦ νῦν ἐν τῷ τρίτῳ τῶν Φυσικῶν φησι γράφων οὕτως. “εἰ δὲ νοήσαιμεν φερομένην στιγμήν, τῷ δὲ ἐν ἄλλῳ <καὶ ἄλλῳ> τῆς γραμμῆς γίνεσθαι καὶ αὐτὴν ἄλλο καὶ ἄλλο γινομένην, οὕτω δὲ οἰηθείμεν καὶ περὶ τὸ νῦν ἔχειν, τὸ μὲν ὑποκείμενον, ὅτιδῆποτε δεῖ νοῆσαι αὐτό, διαμενεῖ τὸ αὐτό, ἐν ἄλλῳ δὲ καὶ ἄλλῳ γινόμενον ἕτερον καὶ ἕτερον ἔσται.” Simplicius *In Phys.* 9.723.36-724.4.

²⁴ Philoponus argued that by this phrase Aristotle meant to say that the now is identical in substratum: ὁ δὲ ποτε ὄν ἐστι, φησί, τὸ αὐτό, τουτέστι κατὰ τὸ ὑποκείμενον. *In Phys.* 17.226.27-8.

At any rate, his approach is not free of a particular agenda, whether reconciling Aristotle with Plato or with "Pythagoras", or something else along similar lines. It is thus clear that Simplicius's identification of $\delta \pi \omega \tau \epsilon \delta \nu$ and substrate is not random and that he has a particular agenda, which is undeniable and easily tracible.

A few comments are needed in this context. Firstly, Simplicius's rendering of $\delta \pi \omega \tau \epsilon \delta \nu$ and $\delta \pi \omega \tau' \eta \nu$ has entered modern scholarship.²⁵ In some modern editions of Aristotle's *Physics* (and indeed very authoritative ones, such as Barnes, Hardie, and Gaye), the phrase is translated in all its applications as substratum or substrate. Secondly, some scholars (e.g., Coope, Reeve, and Sachs, among others) seem to recognize that substrate may not be the exact equivalent of $\delta \pi \omega \tau \epsilon \delta \nu$. More significantly, this rendering appears to imply a theory that may be alien to Aristotle's own ontological commitment in relation to the now. Yet, strange as it might seem, most scholars have translated Aristotle's $\delta \pi \omega \tau \epsilon \delta \nu$ and $\delta \pi \omega \tau' \eta \nu$ as substrate. Cornford went even further by translating it, at times, as substance and, at other times, as object, thus strengthening the Pythagorean aspect of Aristotle's discourse.²⁷

What, then, is substrate in Aristotle? As we learn from the *Physics*, a substrate is what underlies change and enables the subject of change to maintain its identity and survive change.²⁸ It is also something receptive of opposites, i.e., various antithetical forms or properties that it can accommodate without being destroyed, e.g., the properties of before and after, of first and last, etc. A substrate thus appears to be one of Aristotle's fundamental physical terms. Once the now is apprehended as having its own substrate, it immediately, though implicitly, obtains subjectivity and receptivity to opposites. This shift is a gateway to Neopythagorean thought, as it paves the way to an interpretation of the now as creating time by flowing.

²⁵ As Brague (1982) p. 98 rightly pointed out, "l'interprétation philosophique de la formule fait l'unanimité, en tout cas au niveau élémentaire où il s'agit d'identifier son contenu: tous supposent qu'il s'agit du substrat, ou du sujet, en un mot de l'*hypokeimenon*".

²⁷ See Wicksteed and Cornford (1934).

²⁸ $\delta \tau \iota \delta \epsilon \iota \tau \iota \alpha \epsilon \iota \upsilon \pi \omega \kappa \epsilon \iota \sigma \theta \alpha \iota \tau \circ \gamma \iota \gamma \nu \acute{o} \mu \epsilon \nu \omicron \nu, \kappa \alpha \iota \tau \circ \upsilon \tau \circ \epsilon \iota \kappa \alpha \iota \acute{\alpha} \rho \iota \theta \mu \acute{\omega} \acute{\epsilon} \sigma \tau \iota \nu \acute{\epsilon} \nu, \acute{\alpha} \lambda \lambda' \epsilon \iota \delta \epsilon \iota \gamma \epsilon \omicron \chi \acute{\epsilon} \nu \cdot \tau \circ \gamma \grave{\alpha} \rho \epsilon \iota \delta \epsilon \iota \lambda \acute{\epsilon} \gamma \omega \kappa \alpha \iota \lambda \acute{o} \gamma \omega \tau \alpha \upsilon \tau \acute{o} \nu$. Arist. *Ph.* 190a14-17.

3. Reverting to Aristotle's Standardized Taxonomy

Simplicius does not, however, seem to be totally content with this linguistic and interpretative shift. According to him, a juxtaposition of what is one and the same in substrate with what is other and other in being or logos should have a proper equivalent in Aristotle's thought. Yet he does not go back to Aristotle's original phrasing but instead retains and even further articulates his thesis that $\delta \pi\omicron\tau\epsilon \delta\nu$ means precisely substrate. This raises the question of what the sameness in substrate is equivalent to in Aristotle's standardized taxonomy. The sameness in substrate should be equivalent to sameness in number or in species, or by analogy, etc. Otherness should also be identified as applying to number or species, etc.

Once again, to be the same or other in number is to have the same or different matter; and to be the same or other in form means to have the same or a different form of being. Aristotle also mentions analogy and states that to be one and the same by analogy is to be related as one thing is to another.²⁹ He says that "things that are one [and the same] by analogy are not all one in genus."³⁰ The term genus here does not mean that which can be differentiated into species but rather a subject genus.³¹

This second move was not uncommon among Aristotle's critics and interpreters. A similar attempt was made earlier by Pseudo-Archytas.³² Simplicius thus looks to Pseudo-Archytas and aims to reconsider a less cryptic terminology (once he settles on translating $\delta \pi\omicron\tau\epsilon \delta\nu$ as substrate), in order to frame substrate within Aristotle's standardized taxonomy. As we learned from Aristotle, substrate is one in number and different (i.e., not one) in form ($\epsilon\iota\delta\epsilon\iota \gamma\epsilon \omicron\upsilon\chi \xi\nu$). The inference from substrate to numerical unity seems to be immediate. Consequently, at first, he argues that "the nows differ from each other in no way save that one is before, the other after."³³ This statement seems to be an inference from the thesis of the unity of the now's substrate. It is one and the same, i.e., one in number; yet it receives different

²⁹ Arist. *Metaph.* 1016b34-35.

³⁰ *Ibid.* 1017a2-3.

³¹ Wilson (2000) p. 10.

³² Ps.-Archyt. *Frs.* 29.13-5.

³³ Simpl. *In Phys.* 9.725.10-11.

“forms” or, according to Aristotle’s jargon from Book IV, its *logos*/account/description varies (at this point, the variable has not yet been identified). This, according to Simplicius, means that *nows* are different “in neither genus nor species, so also not in number.”³⁴ Therefore, according to Simplicius, being arranged in a sequential order does not amount to having a different matter or form, etc. Hence, the *now* is the same in number and species.

It is worth noting in this context the homonymy of εἶδος, as it can mean both species, form, shape, etc. It is thus possible, according to Aristotle, for one and the same thing to be the same in genus, species and number in relation to itself when considered as more than one. Conversely, it is impossible for it to be one in number and many in species or genus, as this would render it self-contradictory. What is possible, instead, is for one and the same thing to have different descriptions or accounts. In this context, Simplicius's statement makes perfect sense.

The overall argument, nevertheless, is odd; for Simplicius posits that the reason for sameness lies in the analogical identity of the now and the unit of number. The now is therefore the same in number and species because a unit of number does not exhibit any numerical or specific difference in relation to another unit.³⁵ Again, at first glance, number and applied (or instantiated) number (i.e., time as the number of motion), together with their principles (i.e., the unit and the now), appear to represent two different and somewhat separate subject genera. The middle term, however, is supplied by the science of number and thus makes the argument susceptible to genera crossing. At least, the argument requires further clarification as to how the middle term supplied by the science of number can explain anything in the science of applied number, even if the two subject genera are bound up by the introduction of a new overarching subject genus which subsumes these proper genera hierarchically arranged and structured in the framework of superordinate and subordinate sciences.³⁶ Either he does not recognize the

³⁴ *Ibid.* 9.725.11-12.

³⁵ ὥσπερ οὐδὲ μονὰς μονάδος. *Ibid.* 9.725.12.

³⁶ See Wilson (2000) p. 10.

difference between the subject genera in this context (thus adopting the Neopythagorean approach to the subject matter)³⁷ or thinks that it is appropriate to cross the genera.

Although Simplicius's argument is odd, if we look at it from a different angle, it is quite intriguing. He maintains that the now does not differ from another now. Why is that? Because, he argues, "things that differ numerically, as has been said before, differ by certain accidents, just as Plato differs from Socrates."³⁸ Again, numerically different things are those whose matter differs. Plato and Socrates are differentiated in this way. In other words, they have different underlying substrates. Yet the units of number are not differentiated in the same way. The implicit conclusion of this enthymeme is that nows have no characteristics that make them different in number. They are the same in number. So, nows are the same now before and after. This makes sense. The now is perhaps, first and foremost, the same and obtains otherness *qua* something else, e.g., moving things.³⁹

Yet Simplicius's proof can still raise eyebrows. If existing before and then after does not contribute anything to the material differentiation of nows, how then are they different? Is such a difference merely apparent? I think what Simplicius has in mind is the Stoic principle of indiscernibles.⁴⁰ He may have thought that a relative order of nows (or, perhaps, a quasi-order as nows are not next to each other and their precise "location" in a temporal series remains unspecified due to their density, as we learn from Aristotle)⁴¹ is not a proper distinguishing quality able to make nows "peculiarly qualified."⁴² Similarly, the unit of number is neither a cardinal nor an ordinal

³⁷ Ps.-Archyt. *Frs.* 6.12-15.

³⁸ τὰ γὰρ ἀριθμῶ διαφέροντα, ὡς καὶ πρότερον εἴρηται, συμβεβηκόσι διαφέρουσι τισιν, ὡς Πλάτων Σωκράτους. *Ibid.* 9.725.12-14.

³⁹ For instance, according to Iamblichus, the now *qua* indivisible (i.e., partless instant) always exists and does not come to be (καὶ ὅτι τὸ νῦν ἔστι καὶ οὐ γίνεται). *Simpl. In Phys.* 9.792.28-29. Yet, he argues, "the now which is participated in nature and is not separate from the things which are in a state of becoming is different from the now which is separate and subsists in itself, the latter being at rest with regard to its form while the former is seen to be in continuous motion." *Simpl. In Cat.* 8.355.11-14.

⁴⁰ Plut. *Comm. not.* 1077C4-E2.

⁴¹ Arist. *Ph.* 218a16-21.

⁴² Stob. 1.177, 21-179, 17 (including Posidonius fr. 96), in Long and Sedley (1987) pp. 167-8.

number but a mere principle of number from which number derives or its building block. For this reason, it does not have any characteristics apart from the fact that units cannot be together but must be apart, i.e., one after another. Otherwise, they are indiscernible.

A general conclusion then follows: “perhaps they [i.e., nows] are said to be identical in substrate because they are in no way different”.⁴³ Here again, Stoic thought seems to be instrumental in Simplicius's argument, as he takes into account the Stoic distinction between the meanings of substrate, using the term in its second meaning, i.e., of what is commonly or peculiarly qualified.⁴⁴ Again, Simplicius seems to make sameness prior to difference in respect to nows. His conclusion that the now *qua* ὁ ποτε ὄν or substrate is always the same is proved by the absence of a differentiating principle (e.g., in number or species, etc.) that can make nows other and other. At least, he does not seem to regard the prior and the posterior as capable of assuring numerical or specific difference. We may therefore assume that nows are the same in number by virtue of their “matter” being identical.

Yet in what comes next Simplicius proposes that “it is better to say that ‘identity in substrate’ means the same as ‘identity in species’”.⁴⁵ His justification is that “to be the same in species in such a way as to admit no difference and to be numerically identical seem the same in a way, as was said earlier in the case of units”.⁴⁶ Thus, nows are the same in number and in species. Therefore, they have the same matter and the same form. They differ only in that they are sequentially ordered as before and after. This part of Simplicius's interpretational move thus applies Aristotle's standardized taxonomy only to the issue of sameness *qua* ὁ ποτε ὄν or substrate. It is the same in both number and species. It is different in respect to before

⁴³ Simpl. *In Phys.* 9.725.14-15.

⁴⁴ Thus, as Porphyry reports: “(1) Substrate is twofold, not only according to the Stoics but also according to the earlier philosophers. (2) For unqualified matter, which Aristotle virtually names, is the primary meaning of substrate. (3) The secondary meaning is that which is commonly or peculiarly qualified. For the bronze, and Socrates, are substrate co whatever comes about in them or is predicated of them.” Simpl. *In Cat.* 8.48.11-16.

⁴⁵ Simpl. *In Phys.* 9.725.18-19.

⁴⁶ *Ibid.* 9.725.20-22.

and after; but this difference does not have any equivalent in the terms of Aristotle's taxonomy.

Simplicius, however, does not seem to be entirely happy with this solution. He keeps wondering why Aristotle did not say "that the now was the same in form but that it was the same in substrate, nor say now that a time was the same in form, as he said of change, but by recurrence (τῷ πάλιν καὶ πάλιν)? Yet he especially insists on the threefold exhibition of the same thing by genus, form and number."⁴⁷ Here we encounter a new term: recurrence. Simplicius's suggestion is that "perhaps it was because even things said to be the same in form still contain many inessential differences, if they differ numerically as do Plato and Socrates. But changes, at any rate, which occur over and over again the same, and the nows and the times, are almost numerically identical."⁴⁸ He seems to be unsure here about the status of the numerical identity of nows. In any case, it is worth noting his hesitation in acknowledging the full numerical identity of the now.

Indeed, his measured approach shows some uncertainty regarding whether nows are numerically the same. He finds support for the thesis that "things became in a way even numerically identical by recurrence" in "Pythagorean" thought.⁴⁹ Yet he ultimately seems to concede that Eudemus reduced this thesis to absurdity by arguing that if we assume that numerically the same things recur, everything will be the same, as also will time. Hence, he finally settles on the view that the now is the same in form and perhaps almost identical in number but with some qualification, pointing out that numerically identical things do not recur and that what does recur must be differentiated, at least in respect to order. If we take into account the notion of "qualified sameness" in the sense of "sameness in appearance" alone (and difference in reality), then Simplicius's theory sounds either very similar to, or even the same as, that of Pseudo-Archytas.⁵⁰

⁴⁷ *Ibid.* 9.732.14-18.

⁴⁸ *Ibid.* 9.732.18-22.

⁴⁹ *Ibid.* 9.732.23-24.

⁵⁰ Ps.-Archyt. *Frs.* 29.13-15.

The now thus conceptualized by Simplicius, if converted into Aristotle's standardized taxonomy of sameness, appears to be the same (with qualifications) in number (*qua* ὁ ποτε ὄν or substrate) and species and other and other in account (*qua* being first and then next). Indeed, it seems impossible to conceptualize the now as different in species or form, unless we assume that the before and after are species or forms of their own kind. On the other hand, to conceptualize the now as numerically different would entail conceding fully to Pseudo-Archytas, Iamblichus, *et. al.*, i.e., reading Aristotle through a very particular Neopythagorean theory, a move that Simplicius is not ready to make. This theory proceeds via the introduction of the notion of the now's phases, maintaining that numerical differentiation (associated with ontological instability) and formal sameness (marking the being of ontologically stable entities) are not predicated of the same now or not of the same phase of the now.⁵¹ Yet Simplicius in this context aims to remain faithful to Aristotle, whose now is not phased.

Moreover, the imposition of numerical otherness seems to contradict the previously established thesis of the now's sameness *qua* substrate, i.e., to make the substrate subject to corruption, to deny unity and sameness to it. Another impediment here is associated with the fact that being before and after, if we are to conceptualize it as representing an ordered series, implies being first and then next. Yet, as Aristotle argues in *Physics* VI, nows are not arranged so that one now is next to another now. Even if they are ordered in some way, their order may appear arbitrary or random. As a result, being before and after cannot really account for the now's numerical difference. Hence, Simplicius's conclusion that the now is the same in species and almost identical in number leaves the issue at stake not fully resolved.

⁵¹ Thus, Iamblichus asserts, "if one says that the now becomes and disappears, one has to understand this not with regard to the now [i.e., partless instant] itself but with regard to the things which participate in it or do not participate in it. For to hold together and to make continuous is a property of the indivisible only, whereas to become one thing after another and to perish and always to flow is most characteristic of the participation of the now in becoming." Simplicius, *In Cat.* 8.355.4-8.

4. *Assessing Aristotle's Analogical Reasoning*

Running parallel to Simplicius's exploration of Aristotle's terminology is his effort to discern the meaning of Aristotle's analogies. He starts with the analysis of the analogy of what is carried and its motion.

having shown how that which moves is identical with the substrate, though different in account, he says that the case is the same with the now, since time follows on change and has the same features, as was said earlier, and similarly with the now and what changes. The likeness and identity of the cases is shown by the relation of the now to that which moves, and we recognise the before and after in change in no other way.⁵²

Simplicius, in this context states that: "he [i.e., Aristotle] takes it as obvious that what is changing is identical in substrate."⁵³ This statement is then universalized as holding true not only of what is carried but also of the point and of the now. The relation between such terms as the now and motion thus appear to be not merely analogous *qua* a common property, i.e., identity of substrate; but also as belonging *per se* and *qua* themselves to time as their subject genus. Hence, motion/flow belongs to the now, thus making it subject to change.

Simplicius then reminds us of Aristotle's explanation of following or accompanying, in which "change was said to accompany magnitude and time to accompany change".⁵⁴ The meaning of this statement in Aristotle seems to be that what is ontologically posterior accompanies what is ontologically prior, e.g., as time accompanies change, etc. This is perhaps the reason why time is the number of change, the latter being ontologically prior and the former posterior. Yet Simplicius immediately links the notion of accompanying/following to that of being equal in quantity. Then, he continues, "since these things accompany each other, the things that originate them will accompany them also."⁵⁵ This assertion immediately subverts the notion of ontological priority/posteriority by presenting a principle as accompanying its product (that which stems from it) and not as being accompanied by it. I take

⁵² Simpl. *In Phys.* 9.723.21-26. In this article I use Urmson's (1992) translation.

⁵³ ὅτι δὲ τὸ αὐτὸ τῷ ὑποκειμένῳ ἐστὶ τὸ κινούμενον ὡς ἐναργὲς λαμβάνει. *Ibid.* 9.723.4-5.

⁵⁴ *Ibid.* 9.722.23-24.

⁵⁵ *Ibid.* 9.722.26-27.

Simplicius's statement not as applying the meaning of ontological priority/posteriority to the subject matter but rather as reinterpreting it along the lines of mutual dependence or something of this kind. Only under this interpretation does the statement remains coherent.

The same relation of following binds together time and its principle, the latter appearing to accompany time. Time may therefore be accompanied by the now while being its unfolding or something else similar. This way of thinking is authentically Neopythagorean.⁵⁶ Consequently, by introducing the relation of following to what is carried and its motion, on the one hand, and the now and time, on the other, Simplicius aims to implicate Neopythagorean thought in Aristotle's discourse. He thus states that:

the point originates the magnitude, taking a line to be the flow of a point, and a line is the first magnitude, and the moving thing originates the motion, and the now originates time. As, then, the same point, by flowing, creates the magnitude, but is not set alongside another point, and as the identical moving object creates the motion, so the now, that is the same *qua* substrate, being numbered as before and after, defines and creates time.⁵⁷

This reading is grounded in an ontology of mathematical and indivisibles that is arguably alien to Aristotle.⁵⁸ The flow of a point originates magnitude. The point in this scenario is a "this", a substantive point, we might say, one that is subject to flow. Flow stands for the ontological instability associated with a particular modality of being, i.e., incomplete actuality. This modality, as I understand it, represents the lower phase of motion (which is a moving motion, as contrasted to that of the motionless motion of the intelligible or intellectual).⁵⁹ We may therefore conclude that flow is a kind of motion and that the point is subject to motion. It is receptive to opposites, e.g., before and after, first and next, etc. It is indivisible and yet moving continuously, leaving no gap in the geo-

⁵⁶ See Hoffmann (1980) pp. 313-4.

⁵⁷ *Simpl. In Phys.* 9.722.27-34.

⁵⁸ There are, however, some scholarly accounts that ascribe this "Pythagorean" thread to Aristotle. See Robbins in D'Ooge (1926) p. 117.

⁵⁹ See Gersh (1973).

metrical continuum. This continuum, initiated by indivisibles that become ontologically unstable, was conceptualized by Nicomachus, Pseudo-Archytas, etc.⁶⁰

Yet Simplicius is well aware that this Neopythagorean interpretative thread goes against Aristotle's theory of indivisibles. A point in Aristotle is not a substantive point. The same applies to the now. They are mere limits of the line and of time. Consequently, he notes that the case of a moving object is somewhat different since what initiates the flow of becoming is not a move, i.e., an indivisible limit of motion (i.e., something similar to the point and the now), but a moving object, which is a "this".

What is especially interesting is that the flow of the now is linked here to numbering. This interpretative twist seems to lie halfway between the Aristotelian and Neopythagorean theories, in that it implicates subjectivity in the now *qua* substrate; yet it also implicates Aristotle's ontology of number, which is not an actual and separate being, since it needs to be actualized by the mind capable of counting. Hence, time is actualized when the now/s is/are counted.

In this context, Simplicius exhibits a certain reluctance to give a full explanation of Aristotle's theory that entails applying the Neopythagorean interpretative thread to the ontology of number, according to which number (along with numerical relations, etc.) is a separate and actual being of its own kind. Additionally, this (i.e., Neopythagorean) interpretative thread is based on the assumption that a single subject genus subsumes motion, number, and time (i.e., that there are *per se* connections between these), along with their principles, which originate them.⁶¹ In this context, Simplicius does not,

⁶⁰ Nicom. *Intr. Arith.* 1.7.1.1-2.

⁶¹ Some Neopythagoreans would have employed the theory of a self-moving number in order to prove that such an account is by no means subject to the fallacy of genera crossing since it makes number (and the number of motion) subject to motion and introduces a common subject genus to the field of quantitative studies. It contains two coordinate groups: continuous and discrete quantities; these are differentiated by two differentiae, i.e., rest and motion. These differentiae give us four sciences that are either bound by the single subject genus or represent coordinate and subordinate genera. Therefore, the science of continuous quantity at rest is geometry, whereas the science of continuous quantity in motion is astronomy. The science of discrete quantity at rest is arithmetic, whereas the science of

however, predicate motion but rather mere countability to the now. Moreover, Simplicius is not willing to cross the genera. Rather, he warns the reader to stay within the boundaries of analogical reasoning in order to avoid the possibility of a discourse marked by genera crossing, since the two subject genera are independent. Consequently, the assertion of identity is a mere expression of co-proportionality, and nothing beyond that.

Simplicius then explains the reason why these subject genera are independent: "the moving object, though coming into different places, can correctly be said to be identical in substrate, since it remains in existence, but how can change and time and in general everything that has its being in becoming be identical in substrate?"⁶³ Although Simplicius's theory of "being in becoming" deserves a special investigation, I shall set it aside for the present. Basically, what he means to say is that, whereas a point or a stone continues to exist (after it has completed its motion), time has its being in becoming and does not exist in any other way. The same applies to the now. It is enough to say here that, in order to avoid fallacious reasoning, Simplicius rightly cautions us not to attribute the predicates of the moving object to the now. An interesting ramification of this thesis (that being is in becoming) is that the now cannot be one, since time and, by implication, the now, does not last but has its being in becoming, i.e., it has come, and it has ceased to be. Hence, the notion of "being in becoming" and that of "sameness *qua* substrate" do not seem to square well.

Simplicius also notes that there is not a perfect analogy between the now and what is carried. The reason is that "if there are these three, magnitude, change and time, mutually dependent, as he says, magnitude being limited by points, time by the now, what is analogous to these, I mean the point and the now in the case of change. For there should be some other limit to change and not the changing thing. For what relationship has this to the now and the point?"⁶⁴ Indeed, as A is to B, so C is to D and so E is to F stands for: as the point is to magnitude, so the move is to motion and so the now is to

discrete quantity in motion is music. Hence, "quantity has produced four sciences: immovable continuous quantity – geometry; movable continuous quantity – astronomy; immovable discrete quantity – arithmetic; and the movable – music." Ps.-Archyt. *Frs.* 6.12-5.

⁶³ *Simpl. In Phys.* 9.724.29-31.

⁶⁴ *Ibid.* 9.725.4-8.

time. Yet the analogy of a moving object disrupts this proportion. It is therefore imperfect, and things presented in this way are not co-proportional. Simplicius, in the end, seems to be dissatisfied with Aristotle's analogies. He regards the analogy of the point and the stone as forced;⁶⁵ and he would have to qualify the analogy in some way in order to avoid considering it "altogether harsh".⁶⁶

What is important in this context is the at times implicit and at other times explicit affinity of Simplicius's thought with Neopythagorean thought. Yet we can also see that Simplicius, no matter how willing he is to interpret Aristotle in a Neopythagorean fashion, is well aware of the limits of this approach (i.e., of reading Neopythagorean thought into Aristotle). He is careful not to over-impose Neopythagorean theories onto Aristotle's discourse. At times, however, he apparently cannot resist this temptation: for instance, his interpretative twist regarding the sameness of the now clearly draws on Neopythagorean philosophical background to support this interpretation. Similarly, Simplicius's interpretation of ὁ ποτε ὄν as substrate implicates subjectivity and receptivity of opposites in the now.

More importantly, Simplicius's assessment of Aristotle's analogical reasoning is that it does not require precision (μὴ ἀκριβολογώμεθα, "let us not split hairs").⁶⁷ Analogies help the reader to tackle the subject matter; but analogical reasoning fails to achieve the level of precision typical of syllogistic reasoning. Consequently, I understand Simplicius's statement as a warning about the limits of analogical reasoning. The implication is that the terms of analogical reasoning should not be included in a demonstrative premise. Simplicius suggests that in order for us to grasp the full meaning of Aristotle's statements with respect to the now, we must move forward and explore *Physics* VI, since it may contain the missing answers and clarifications. So let us turn to it.

⁶⁵ ἀλλ' ἡ ὁμοιότης βίαιος δοκεῖ ἢ πρὸς στιγμήν καὶ λίθον. *Ibid.* 9.725.15-16.

⁶⁶ *Ibid.* 9.725.23.

⁶⁷ *Ibid.* 9.725.17-18.

5. *Transitioning to Physics VI*

In his commentary on *Physics* VI, Simplicius investigates in what sense the now or any indivisible relates to motion. His interpretation of Aristotle's theory in *Physics* VI is of great help in discerning the problem of the now's otherness and its relation to motion. Previously Simplicius made a few attempts to address the issue of the now as subject to motion in Neopythagorean fashion. This was partially grounded in Aristotle's analogy between what is carried and the point. Another (and alternative) attempt entailed presenting the now as the principle of time, i.e., that from which time derives. This was tied to the notion of countability. Moreover, Simplicius's interpretation of Aristotle's theory was also premised on the thesis that magnitude, motion, and time follow (or, rather, are followed by) their principles. Yet he found the analogical reasoning in *Physics* IV to be compromised by imprecision. Aristotle, however, had another approach to the issue, which involved continua and indivisibles.

In his commentary on *Physics* VI, Simplicius's main point of concern is the now's otherness. How is it other and other? According to the dilemma of the now, the now cannot be other and other since in order for it to be so the previous now must have ceased. Yet, he notes, it is impossible to conceptualize the "when" of its having ceased since it can neither have ceased at itself (as that is when it existed), nor at another now since nows are not next to each other; therefore, its having ceased at another now would entail its simultaneity with an infinite number of nows, which is impossible.

First of all, the question of whether the now is subject to coming into being and ceasing is posited. What moves has moved and what has moved has been moving, according to Aristotle.⁶⁸ What moves must be divisible, progressing part by part. Consequently, one part of a moving thing must be at the starting point and another part at the end point or in the middle.⁶⁹ Motion and time are infinitely divisible. Yet the now is indivisible, and there is no prime now at which what is carried has departed from rest and started moving. In what sense, then, and when can anything move in the now and

⁶⁸ Arist. *Ph.* 237b3-6.

⁶⁹ *Ibid.* 234b15-19.

in what sense can the now be subject to motion of some kind? To find out whether the now is self-differentiated through motion (i.e., that it is the same in substrate and other and other *qua* subject to motion or quasi-motion, i.e., have moved or ceased to move), let us consult Simplicius and also consider his conjecture regarding “when” the now has ceased.

6. The Homonymy of Have Moved

Simplicius’s interpretation of Aristotle’s theory of indivisibles is grounded in the theorems that nothing moves in what is indivisible and that an indivisible is not *per se* subject to motion. An important task in this context is to cast light on the homonymy of “have moved”, which can mean: 1. Having traversed the whole distance and being at the end point. 2. Having traversed some distance while still being in motion. 3. Having abruptly moved at an indivisible or atomic (i.e., uncuttable) magnitude with the atomic move at an atomic time. These homonymous appellations need to be considered in order to discern the sense in which an indivisible now (i.e., an instant of time) and motion go hand in hand without jeopardizing the integrity of Aristotle’s theorems.

Regarding the first meaning, Simplicius refers to Aristotle’s theorem, according to which it is impossible for a thing to both move or be moving and to have moved, i.e., have completed its motion. Thus, “he [Aristotle] proves that it is not possible that moving [with] one of these motions to be indivisible, assuming in advance that it is impossible for ‘something moving from somewhere to somewhere simultaneously to move’ toward that to which it is moving ‘and to have moved’, and to be there [at the place] toward which it was moving.”⁷⁰ It should be noted that the example adduced by Aristotle may appear to be misleading: if “a man is walking to Thebes, he cannot be walking to Thebes and at the same time have completed his walk to Thebes”.⁷¹ Yet Simplicius explains the rationale behind it by claiming that if that is the case, then:

⁷⁰ Simpl. *In Phys.* 10.933.14–17. Konstan’s (1989) translation.

⁷¹ Arist. *Ph.* 231b30–232a1.

it will be moving over the whole, but no longer will it be moving also along each of those indivisible portions. Having posited this, [Aristotle] draws absurd consequences by means of the following consideration: the motion will be composed not of motions [*kineseis*] but of moves [*kinemata*], that is of the limits of motion, and of 'having moved'. For the motion DEF will not have the portions D and E and F as motions, for these [portions] were supposed to have moved, not to move. Similarly, the portions of moving [*kineisthai*] too will be, not a moving, but rather a having moved, and moving will be divided into portions which are not a moving, but rather a having moved.⁷²

Simplicius then endorses Aristotle's conclusion and states that, on the contrary, walking to Thebes occurs before being in Thebes. He then makes some further important comments: "it is necessary, accordingly, either that it traverse earlier and have traversed later, or that it simultaneously traverse and have traversed; for there is nothing between [these alternatives]. But if, traversing earlier, it has traversed later, the motion would be divisible."⁷³ What if a thing simultaneously traverses and has traversed? Is this possible? We will see soon that it is. Both alternatives are, therefore, viable; but they do not apply to the same kind of motion.

Simplicius then scrutinizes Aristotle's theorem, according to which everything that is moving has moved earlier.⁷⁴ He clarifies this (second) sense of "have moved": "for he [i.e., Aristotle] takes [the term] 'it has moved', as I said, not in the sense that what is said to have moved has already stopped its motion, but rather in the sense that it has already traversed some amount in its moving."⁷⁵ He also notes that in cases of continuous things the converse also holds true, "[namely] that it is necessary that everything that has changed be changing earlier."⁷⁶

Yet he also points to Alexander's attempt to explain the issue by referring to some passages from the *Metaphysics*:

Alexander says that the [phrase] in the beginning of the passage, [namely] 'as many as are divisible and continuous', is added because there are some things, in the case of which we

⁷² Simpl. *In Phys.* 10.934.9-17.

⁷³ *Ibid.* 10.933.22-25.

⁷⁴ "that which has changed must have been changing and that which is changing must have changed" (ὥστε ἀνάγκη τὸ μεταβεβληκὸς μεταβάλλειν καὶ τὸ μεταβάλλον μεταβεβληκέναι). Arist. *Ph.* 237b3-4.

⁷⁵ Simpl. *In Phys.* 10.992.20-21.

⁷⁶ *Ibid.* 10.994.17-19.

predicate that they came to be, although they do not have their being [*einai*] by virtue of coming to be [*genesis*]. We say that contacts, at least, have come into being, [but] not, indeed, that they are coming to be.⁷⁷

Simplicius concedes this thesis. He also brings up the issue of qualitative change: that there are instances of such a change in which the change takes place all at once, i.e., instantaneously. He then states that “in these cases changing and having changed do not precede each other”.⁷⁸ Aristotle, according to Simplicius, later clarified this thesis by arguing that all such cases still complied with the general rule, according to which motion is a gradual progression from and to something, even though its gradual aspect may escape our attention.

This thesis, however, fits indivisibles perfectly. Thus, Simplicius argues: “contact, if it does not have its being by virtue of coming to be, is not said to have come to be either, but rather to be without coming to be. Therefore, in the first [book] of *On the Heavens* [280b6-9], Aristotle says that one of the meanings of ‘ungenerated’ [*agenetos*] is what [occurs] according to contact.”⁷⁹ The thesis of being without becoming is then entertained. The same applies to perfections or excellences and pleasures in *EN*.⁸⁰

This explanation, however, does not seem to satisfy Simplicius. Although he does not directly discuss the issues associated with this interpretation, it is possible to discern what they are. The thesis from the *Metaphysics*, according to which contacts are and are not, does not seem to fully accommodate the now. If something is and is not, is it the same thing or other and other? What can assure the sameness of such a thing? Eternal things are and are not, while being always the same. Yet physical phenomena are different.

⁷⁷ *Ibid.* 10.997.30-998.1.

⁷⁸ *Ibid.* 10.998.11-12.

⁷⁹ *Ibid.* 10.998.17-19.

⁸⁰ They are exercised and made fully and completely manifest at each instant of an action. Recently this topic was persuasively argued by Ugaglia, who cited a different source for this same thread (i.e., *Soph. el.*): Ugaglia (2023) p. 498. Aristotle thus seems to draw a demarcation line between human action which exhibits excellence and natural motion by arguing that such an action cannot be a gradual transition from and to opposites, as that would entail seeing coming from the absence of seeing through a gradual progression. The same applies to an action in accord with virtue, pleasure, etc.

This also applies to the nows. Eternal things do not have their being by virtue of coming to be. The now's being, on the other hand, is in becoming.

Let us assume that one now is and then is not. Is the now that is or exists the same as the now that has disappeared? Simplicius does not appear to have an answer to this. The notion that something "is and is not" is, therefore, problematic in relation to Aristotle's thesis that the now is the same *qua* ὁ ποτε ὄν or, according to Simplicius, the same in substrate. The substrate must remain: it cannot be and then not be without having ceased and been replaced by a new and different substrate. "Has moved", on the other hand, does not jeopardize the sameness of the now. It is the same now that has moved without ever being in the process of coming and without being destroyed (without having ceased). This represents the third meaning of "has moved", one that applies exclusively to indivisibles.

This thesis is further supported by the following statement: "he [Aristotle] says, 'let us say' next after these things 'that a partless thing cannot move except incidentally', by being in a moving body or magnitude. How this is meant he indicated in the example in respect to the boat: for things in it that are not moving in their own right themselves too move locally incidentally, by virtue of being in the boat that is moving."⁸¹ Motion is thus predicated of an indivisible *per accidens*. An instant participates in motion *qua* belonging to the moving body, etc. Another possibility is that motion is predicated of the now not precisely but analogically: as things not moving are to motion *qua* being in the boat, so an indivisible is to motion *qua* belonging to the moving body.

Simplicius also considers Alexander's conjecture that this same thesis applies to the soul in the body. Yet Simplicius, due to his Neopythagorean leanings, denies that this application is valid, silently alluding to the Neopythagorean definition of the soul as a self-moving number.⁸² The same is true of motion in the now:

⁸¹ Simpl. *In Phys.* 10.1024.20-23.

⁸² Iambl. *De An.* 4.6-9. On the issues associated with this notion and on Iamblichus's solution, which seeks to overcome the opposition of actual and potential, see Opsomer (2012) pp. 259-90.

in fact, this is impossible in another way as well, for it has been proved that it is necessary that what has moved be moving earlier, just as [it is necessary] that what is moving also have moved earlier. But if there was motion in a now, [then] there occurred something that had moved which did not go through moving toward this [state]. For there was not [supposed to be] moving in a now, but only having moved, for a limit [of moving] is in a limit [of time].⁸³

He therefore concludes: “it is obvious from what has been said before that it is not possible to move in a now, but only to have moved.”⁸⁴ The same, by implication, applies to the now *qua* subject to motion. It cannot move but it has moved.

It should be noted that throughout the commentary Simplicius takes the view that Aristotle’s theorems concerning indivisibles were not fully persuasive to everyone and mentions the Epicureans. Yet what may not be apparent is the affinity of Simplicius’s discourse with that of Pseudo-Archytas, who, arguably, introduced the theorem that time is made up of a series of nows. Thus, the temporal continuum, according to Pseudo-Archytas, is made of indivisibles.⁸⁵ This innovative theory was in the back of Simplicius’s mind. He seems to be arguing that the now cannot be subject to motion; yet it is appropriate to say that it has moved without ever being in motion. This, I assume, is a Neopythagorean extension of Aristotle’s thesis. It allows Simplicius to conceptualize the now as subject to quasi-motion, which is a kind of motion that differs significantly from motions of continuous things.⁸⁶

7. Reconsidering the Issue of “When”

It has been established by Aristotle in *Physics* IV that the now is both always the same and ever other and other, but not in the same sense. It is the same *qua* ὁ ποτε ὄν and other and other in being and *logos*. Yet how is it other and other? This, according to the dilemma of the now, entails that the previous now must have ceased; but when has it ceased? We should bear in mind that Aristotle’s original language with regard to the dilemma indicates that what

⁸³ Simpl. *In Phys.* 10.1027.26-31.

⁸⁴ *Ibid.* 10.1029.20-21.

⁸⁵ Ps.-Archyt. *Frs.* 29.12-18.

⁸⁶ Indeed, this is a concept may even be considered as foreign to Aristotle’s thought, being in open contradiction with his entire treatment of the continuum.

is at stake is the event of cessation or corruption (φθείρω), i.e., that of substantial change and not a mere motion/change (which primarily designates non-substantial change) or mutation (which can designate both substantial and non-substantial change depending on the circumstance). The term corruption or cessation is thus clearly articulated in this context: "If the now is always different then the now which formerly was must have ceased to be."⁸⁷ How, then, can the now retain its substrate?

This seems impossible, unless we assume that the term substrate designates some generic matter of the now, one that is not peculiarly qualified but which survives throughout the cessation. What is clear, however, according to Simplicius, is that if the now is the same in substrate, it has definitely changed or moved. The kind of motion/change at stake is not among the Aristotelian kinds (e.g., quantitative, qualitative and local) but is instead a sort of quasi-motion. Hence, the same now (which is the same in substrate, number and form) has changed without ever being in transition. Simplicius thus softens Aristotle's terminology by setting aside cessation and giving priority to such terms as change and mutation in order to accommodate his thesis.

If it has ceased, when has this occurred? Unfortunately, Aristotle did not offer any hints on how to resolve this aporia. Perhaps he thought of it as of a superficial (i.e., not genuine) matter and decided not to devote any time to it. A possible reason is that a cessation of the now at a now can lead to circular reasoning. Simplicius, on the other hand, takes this dilemma seriously but adjusts Aristotle's jargon accordingly. If the now has changed, when has this occurred? At itself or at another now which is next to it? Simplicius accepts that it cannot have ceased or rather changed at itself. If it has ceased when it existed, it will both exist and have ceased to exist simultaneously, which is impossible. Yet Pseudo-Archytas's now seems to have ceased at itself. It is swift and has ceased before we realize it. This finds support in some modern scholarship.⁸⁸ This thesis, however, leads to a contradiction; therefore, Simplicius cannot accept it. Can it, then, have ceased at the now which is next to it? In his commentary on *Physics* IV Simplicius analyses Aristotle's thesis that limits are not next to each other, that they cannot touch and therefore be contiguous (to be

⁸⁷ τὸ δὲ νῦν μὴ ὄν πρότερον δὲ ὄν ἀνάγκη ἐφθάρθαι ποτέ. Arist. *Ph.* 218a11-16.

⁸⁸ See Kretzmann (1976) pp. 91-114.

both next to and touch) or continuous (have a common boundary). This corresponds to Aristotle's doctrine in *Physics* VI. Yet, when commenting on this book, Simplicius seems to allow for it to have changed at the now which is next to it – with, however, a qualification.

Nows are not next to each other. Aristotle defines being next to in the following way: to be next to is to have nothing of the same kind as itself in the middle.⁸⁹ Yet between any two nows there is time, and time is infinitely divisible. It is divided at a now. Hence, between two nows there are an infinite number of nows, i.e., an infinite number of things of the same kind. Consequently, two nows cannot be next to each other. The now which has ceased cannot have ceased at the now next to it. As Aristotle persuasively argues: “it would exist together with the infinite nows between the two – which is impossible.”⁹⁰

Simplicius makes an important qualification to this thesis. There is a particular sense in which the nows are not next to each other. Simplicius quotes Eudemus's account of Aristotle's definition of being next to and of its ramifications:

Eudemus [fr. 99 Wehrli] treated the argument in the following way: ‘For if,’ he said, ‘partless things are consecutive, then it is absolutely necessary that something not of the same kind be between them, so that there would not be a point, but [rather] a line or empty [space] between points in a length. [If a line], accordingly, the line will not be made of the points; for the consecutive points are not in it. But if there is empty [space], there will be more empty [space] in the continuous [stretches] than the things of which they are made, that is, the so-called consecutive points; or [rather], there will be no magnitude at all. For just as two points that are touching produce no length, so neither do a point and empty [space].’⁹¹

According to Simplicius, Eudemus “correctly understood what was said by Aristotle, [namely] that he was not denying absolutely that point is consecutive to point or now to now, but rather that they were consecutive in such a way that a length or [stretch of] time was made of them.”⁹² He thus assumes that, with this qualification, the now can be next to another now.

⁸⁹ Arist. *Ph.* 227a1.

⁹⁰ *Ibid.* 218a21.

⁹¹ Simpl. *In Phys.* 10.928.28-229.3.

⁹² *Ibid.* 10.929.4-6.

Again, Simplicius seems to be reassessing Aristotle's theory in order to make it compatible with that of Pseudo-Archytas. The result is a now which is subject to quasi-cessation, which ceases and has ceased either at itself or at another now, which is and is not next to the previous one, but with the qualification put forward by Eudemus.

Finally, Simplicius also entertains another important aspect associated with the issue at stake. Nows are and are not next to each other. And if the now has ceased at another now which is and is not next to it, at precisely what now has it ceased? Although Simplicius does not examine this issue directly, he discusses it indirectly in relation to the "when" of a moving thing in respect of its coming to rest. When he analyses the issue of coming to rest, he extends Aristotle's thesis that there is no beginning of motion to that of coming to rest. He then makes the following claims:

If, accordingly, 'it is time in which first' it is said to halt, and not some atomic [i.e. indivisible (*atomon*)] thing, and every time is divisible to infinity, there will not, consequently, be any first [bit] of it, nor will there, consequently, be any beginning of halting, in which the halting thing halts first. For as is the time in which the halting [occurs], so too is the halting in it. Accordingly, from the fact that it halts in any of the portions whatsoever of that which is divided to infinity [i.e. time], he proved that there is not any first thing in which it halts. For neither is there any first thing of that which is divided to infinity, but rather, if halting is moving, and in the case of moving it has been proved that it is impossible to take anything in which first a moving thing moves [cf. 1006.21-22], it is obvious that neither is it possible to take any first thing of halting.⁹³

What moves comes to rest in time, and time is infinitely divisible. So, there is no prime now in respect to coming to rest. Simplicius's answer is that it halts in any of the portions of time. The same may apply to the now if we conceptualize it as subject to quasi-motion.

Let us assume that if the now has ceased, it must have ceased at another now. But nows are the limits of the temporal continuum and therefore are not sequentially ordered. This density of nows is a problem. If the now has ceased, at what now has it ceased? Simplicius's solution, if applied to this issue, is that it has ceased at any of the nows or at any portion of time, no matter how small, since there is some kind of quasi-order of nows, as they are

⁹³ *Ibid.* 10.1008.12-21.

before and after. Nows cannot be ordered randomly so that the now which belongs to the time which comes before can be posterior in relation to the now which belongs to the time which comes after. The previous now cannot therefore have ceased at that which is prior to it, but only at the posterior. At what posterior now must the prior now have ceased, taking into account that there is an infinite number of nows between any two nows?

Simplicius's answer is that it must have ceased or, rather, changed at any of the posterior nows. This posterior now, which is among the densely ordered series of nows, must not, however, be very "distant", so as not to allow irregular movements of the now and, consequently, of time (a leaping of time through its chunks that can make time irregular), because the now should be a "part" of a densely ordered set which belongs to the same temporal stretch. Some modern scholars seem to have followed the same path, taking Simplicius's interpretation as their point of reference. For instance, Sorabji's subtle interpretation of Aristotle's instant is along the same lines,⁹⁴ and is thus indebted to that of Simplicius.

Yet there is another possible solution implicit in Simplicius's interpretation. If the now has moved or has ceased, and if nows are not dense but rather constitute a temporal continuum, as *per* Pseudo-Archytas,⁹⁵ then the now must have ceased at the now which emerges in the "place" of the previous now. Some passages from Simplicius's commentary on *Physics* IV and from the *Corollaries* seem to point in this direction. However, this solution goes against Simplicius's assessment of the sameness or difference of the now in relation to Aristotle's standardized taxonomy. The now, Simplicius maintains, is the same in form and in number. Yet it seems always different *qua* being before and after. Pseudo-Archytas's numerically differentiated nows, on the other hand, are always other and other, come and cease, etc.⁹⁶ Simplicius perhaps suggests that the now has moved without having ceased and that this quasi-motion does not exclude the possibility for the now to be in the process of transition from and to opposites. It is the same now. It must

⁹⁴ Sorabji (1983) pp. 10-2.

⁹⁵ Ps.-Archyt. *Frs.* 29.17-8: καὶ οὕτως αἰεὶ συνάπτει τὸ νῦν συνεχῶς ἄλλο καὶ ἄλλο γινόμενον τε καὶ φθιρόμενον, κατὰ μέντοι γε τὸ εἶδος τὸ αὐτό.

⁹⁶ *Ibid.*

be the same *qua* its substrate. Yet a series of moves or, rather, of having moved is precisely what makes up time. The now thus obtains temporal properties of being before and after. This is a possible Neopythagorean interpretation, according to which the flow of the now, i.e., its ontological instability, is precisely what makes up time. Perhaps time is and is not made up of a series of nows; yet they are not really many serially ordered nows but instead one and the same ontologically unstable now.

Another possible interpretation, which is also Neopythagorean, is associated with the thesis that moving things sliding through the now are responsible for the now's difference (*per* Iamblichus).⁹⁷ We should include, I assume, all such possibilities due to Simplicius's overall commitment to Neopythagorean thought. Simplicius's thinking on the issue of the now is thus by and large determined by the Neopythagorean framework. Although he aims to stay within the boundaries of Aristotle's theories, his thinking cannot be fully detached from the Neopythagorean heritage. Hence, as I understand it, Simplicius's interpretation of Aristotle's paradox, fascinating as it is, may not perfectly reflect Aristotle's own thought processes. On the other hand, it is also possible that Aristotle's discourse on the subject of time and the now is itself imbued with "Pythagorean" traits.⁹⁸ If so, then Simplicius's interpretation can be considered authentic and well grounded.

⁹⁷ Simpl. *In Phys.* 9.792.35-793.1; cf. Nicom. *Intr. Arith.* 1.1.3.10-2.

⁹⁸ Just to give a few examples: Aristotle's definition of time as the number of motion is quite surprising. One way of thinking of this definition is to assume it to be grounded in the epistemic thesis of Philolaus that nothing is known apart from number. Philol. *Fr.* 4: "all the things that are known have number. For it is not possible that anything whatsoever be understood or known without this". Therefore, "knowledge only arises when we know the specific numbers that govern things." Huffman (1993) p. 242. Time thus cannot be known apart from number. Yet Aristotle's statement sounds even stronger, as it does not apply merely to the agenda of grounding the studies of time in this particular epistemic thesis but also to the matter of being and thus aims to unravel the ontological foundations of the phenomenon of time through the theory of number. In some ways, Aristotle's definition reminds us of his "Pythagoreans" (as they are depicted in *Metaphysics*), who conceptualized things as numbers and thus extended the theory of number beyond the boundaries of epistemology to ontology. Arist. *Metaph.* 987a13-19. Moreover, as we learn from Aristotle in *Ph.* IV, the now is either somehow analogous to the moving object and to the unit of number or it is such and such because of the presence of motion in it. What can be more indicative of a "Pythagorean" interpretation than this? Finally, Aristotle's endorsement of the

8. Reassessing the Peripatetic Interpretation

As we have seen, there are two essential approaches to Aristotle's paradoxes, leading to two alternative interpretational threads. We can roughly designate them as Neopythagorean and Peripatetic. Simplicius seems to accept the Neopythagorean approach and interpretation, but with some qualifications. This interpretation is clearly seen in modern scholarship, e.g., Evans, Hussey, and Cornford, among others.⁹⁹ Simplicius appears to reject the Peripatetic approach and interpretation. A fundamental disagreement with regard to the ontology of number is the watershed which separates them: the Peripatetic concept of number as something potential which is actualized when discovered, in contrast to the Neopythagorean concept of number as actual and perhaps a self-moving being.¹⁰⁰ This also concerns time as the number instantiated in motion and its unit or monad.

Throughout his commentary, Simplicius continues to evaluate Alexander's interpretative threads critically, even if some of these threads clearly influenced his own interpretative endeavors. What he fundamentally disagrees with are Alexander's theses that number is not part of the numbered and that number does not exist apart from the enumerator who brings it into existence.

'But number', says Alexander, 'is not an element in what is numbered; so that time, being a number, is also not thus in change. Neither is the name in that of which it is the name in the way that white may be, because the numerically identical name belongs to many things simultaneously, as is the case with number, but white is not identically the same in many things.'¹⁰¹

He then further expands on Alexander's account and questions the validity of his conjectures:

But, if time gets its existence from the enumerator, and thus comes about in change, it will not belong to it as an element in it. Therefore it does not mark its divisions. On this matter

conjecture of "the Pythagorean Paron" with regard to time also speaks up for itself. Arist. *Ph.* 222b17-19.

⁹⁹ See Evans (1955); cf. Hussey (1983).

¹⁰⁰ That is what Iamblichus defined as "the number of self-moving movement [regarded] as a time-like monad" (τῆς γὰρ αὐτοκινήτου κινήσεως ὡς μονάδος χρονικῆς ἀριθμός). Simpl. *In Cat.* 352.13.

¹⁰¹ Simpl. *In Phys.* 9.764.35-765.3.

Sergey Trostyanskiy, Simplicius on Aristotle's Paradox of the Now

one must ask Alexander how the number in what is numbered does not belong to the enumerable, or how time that is the number of change as the enumerable does not belong to change nor is an element in it, although it is said to be an affection and condition of change. For he said 'or is it because it is an affection or condition of change, being its number'.¹⁰²

Although Simplicius rejects Alexander's explanation as invalid, it is very much along the lines of Aristotle's theory of the actualization of number and numerical relations. It is therefore reasonable; and Aristotle's theory of time and of the now seems to point in this direction. It is worth noting that Alexander's interpretation is very much present in modern scholarship and has recently been entertained by various scholars.¹⁰³ What is particularly important in this context is Simplicius's capacity to identify alternative and often antithetical interpretations of the issue at stake and to give a clear assessment of these interpretations.

Conclusion

Simplicius's interpretation of Aristotle's theory of the now is intricate, subtle and driven by Neopythagorean thought. His attempt to make sense of Aristotle's vocabulary was influential in late antiquity and has left a mark on modern scholarship. His application of Aristotle's analogies to this issue has been regarded as enlightening because it clearly exhibits alternative interpretative threads and shows the utility and limits of Aristotle's analogical reasoning. Moreover, Simplicius's reassessment of the theorems in *Physics* VI, with the aim of clarifying Aristotle's propaedeutic considerations in relation to the subject of *Physics* IV, was warmly received in both late antique and modern scholarship. Overall, Simplicius's commentaries help the reader to understand Aristotle's at times very cryptic and puzzling discourse, enabling them to make sense of the intended meaning of his statements and of the

¹⁰² *Ibid.* 9.765.7-13.

¹⁰³ E.g., among the most recent studies this interpretation is featured in Coope's monograph. Thus, "the Aristotelian solution to this puzzle depends on the view that nows, like other indivisibles, only exist if they are in some way marked out from a continuum." Coope (2005) p. 29.

theory in general.¹⁰⁴ Nevertheless, it is clear that his interpretation of Aristotle is at its root-core Neopythagorean.

The now, according to Simplicius, is the same in substrate. It is also the same in number (but with qualifications) and species. The otherness of the now is associated with his account of the now as before and after in time. It participates in motion in a very particular way, *qua* having changed without compromising the “flow of time,” without making it irregular, without jeopardizing the unity of its substrate, which is receptive of such opposites as prior and posterior, before and after, etc. The now is therefore both one and many. There is no when of its having ceased. It remains and does not remain. It moves without ever being in transition, so that it has changed at a part of time associated with the same cluster of densely ordered potential divisions of time. What is important is that Simplicius, in his commentary, does not entertain the notion of the phases of time (e.g., transcendent, generative, generated, etc.) and of the now,¹⁰⁵ remaining faithful to Aristotle, whose now stays on the same plane, so to speak, and does not exhibit vertical differentiations.

Finally, a tendency among scholars to see Simplicius as first and foremost a historian of philosophy may not correspond to the view of him presented here as a very intricate thinker whose philosophical investigations and commentaries merit recognition as theories in their own right. While his philosophical innovations are more explicit in the *Corollaries*, his *Commentaries on Aristotle's Physics* also demonstrate a versatile thinker who endeavors to synthesize diverse and occasionally divergent threads into a coherent theory.

¹⁰⁴ Again, it can be argued that Simplicius often adopts positions that are in open contradiction to Aristotle. In the eyes of his contemporaries, however, whose philosophical training was linked to Neoplatonism/Neopythagoreanism, such a position seemed meaningful, cohesive and faithful to Aristotle's discourse.

¹⁰⁵ See Hoffmann (1980) and Dillon (2010).

Bibliography

- Baltussen, H. (2008) *Philosophy and Exegesis in Simplicius: The Methodology of a Commentator*. London: Duckworth.
- Brague, R. (1982) *Du temps chez Platon et Aristote*. Paris: Presses Universitaires de France.
- Bywater, I. (ed.) (1894, repr. 1962) *Aristotelis ethica Nicomachea*. Oxford: Clarendon Press.
- Coope, U. (2005) *Time for Aristotle: Physics IV. 10-14*. Oxford: Clarendon Press.
- Diels, H. (ed.) (1882-1895) *Simplicius. In Aristotelis physicorum libros octo commentaria*. Berlin: Reimer.
- Dillon, J. (2009) *Iamblichi Chalcidensis in Platonis dialogos commentariorum fragmenta*. Prometheus Trust.
- Dillon, J.M. and Finamore, J.F. (eds.) (2002) *Iamblichus. De Anima*. Leiden, Boston & Köln: Brill (Philosophia Antiqua, 92).
- D'Ooge, M.L. (trans.) (1926) *Nicomachus of Gerasa: Introduction to Arithmetic*. With Studies in Greek Mathematics by F.E. Robbins and L.C. Karpinsky. London: Macmillan Company.
- Evans, M.G. (1955) 'Aristotle, Newton, and the Theory of Continuous Magnitude', *Journal of the History of Ideas*, 16, pp. 548-57.
- Ferejohn, M.T. (2013) *Formal Causes: Definition, Explanation and Primacy in Socratic and Aristotelian Thought*. Oxford: Oxford University Press.
- Gersh, S.E. (1973) *Κίνησις ἀκίνητος: A Study of Spiritual Motion in the Philosophy of Proclus*. Leiden: Brill (Philosophia Antiqua, 26).
- Giampaolo, A. (2012) 'The Meaning of ὁ ποτε ὄν in Aristotle's *On Generation and Corruption* and *Parts of Animals*: Towards a Better Understanding of *Physics* IV, 11 and 14', *Méthexis*, 25 (1), pp. 71-92.
- Golitsis, P. (2008) *Les Commentaires de Simplicius et de Jean Philopon à la Physique d'Aristote*. Berlin: De Gruyter.
- Golitsis, P. and Hoffmann, P. (eds.) (2023) *Simplicius de Cilicie. Commentaire à la Physique d'Aristote: digressions sur le lieu et sur le temps*. Édition critique avec introduction et traduction. Berlin: De Gruyter (Commentaria in Aristotelem Graeca et Byzantina. Series academica, 9).
- Hesse, M. (1965) 'Aristotle's Logic of Analogy', *The Philosophical Quarterly* 15 (61), pp. 328-40.
- Hoche, R. (1866) *Nicomachi Geraseni Pythagorei introductionis arithmeticae libri ii*. Leipzig: Teubner.
- Hoffmann, P. (1980) 'Jamblique exégète du pythagoricien Archytas: trois originalités d'une doctrine du temps', *Les Etudes Philosophiques*, 3, pp. 307-23.
- Hoffmann, P. (1983) 'Παράσις. De la description aspectuelle des verbes grecs à une définition du temps dans le néoplatonisme tardif', *Revue des Études Grecques*, 96 (455-459), pp. 1-26.
- Horky, P. S. (2021) 'Archytas: Author and Authenticator of Pythagoreanism' in Macris, C., Brisson, L. and Dorandi, T. (eds.) *Pythagoras Redivivus: Studies on the Texts Attributed to Pythagoras and the Pythagoreans*. Baden-Baden: Academia, pp. 141-76.
- Huffman, C.A. (ed.) (1993) *Philolaus of Croton: Pythagorean and Presocratic. A Commentary on the Fragments and Testimonia with Interpretive Essays*. Cambridge: Cambridge University Press.

- Huffman, C.A. (ed.) (2014) *A History of Pythagoreanism*. Cambridge: Cambridge University Press.
- Hussey, E. (1983) *Aristotle's Physics: Books III and IV*. Oxford: Clarendon Press (Aristotle Series).
- Kahn, Ch.H. (2001) *Pythagoras and the Pythagoreans: A Brief History*. Indianapolis: Hackett Pub Co.
- Konstan, D. (1989) *Simplicius on Aristotle's Physics 6*. Ithaca: Cornell University Press.
- Kretzmann, N. (1976) 'Aristotle on the Instant of Change', *Proceedings of the Aristotelian Society*, Suppl. Vol. 50, pp. 91-114.
- Lederman, H. (2014) 'Ho Pote On Esti and Coupled Entities: A Form of Explanation in Aristotle's Natural Philosophy', *Oxford Studies in Ancient Philosophy*, 46, pp. 109-64.
- Long, A.A. and Sedley, D.N. (eds.) (1987) *The Hellenistic Philosophers*. Vol 1. Cambridge: Cambridge University Press.
- Louis, P. (ed.) (1956) *Aristote. Les parties des animaux*. Paris: Les Belles Lettres.
- Menn, S. (2022) *Simplicius: On Aristotle Physics 1-8. General Introduction to the 12 Volumes of Translations*. London: Bloomsbury Academic (Ancient Commentators on Aristotle).
- Minio-Paluello, L. (ed.) (1949, repr. 1966) *Aristotle. Categoriae et liber de interpretatione*. Oxford: Clarendon Press.
- Opsomer, J. (2012) 'Self-motion according to Iamblichus', *Elenchos* 33 (2), pp. 259-90.
- Rashed, M. (éd.) (2005) *Aristote, De la génération et la corruption*. Paris: Les Belles Lettres (Collection des Universités de France. Série grecque, 444).
- Reeve, C.D.C. (2018) *Aristotle, Physics*. Indianapolis: Hackett Publishing Co.
- Roark, T. (2011) *Aristotle on Time. A Study of the Physics*. Cambridge: Cambridge University Press.
- Ross, W.D. (ed.) (1924, repr. 1970 [of 1953 corr. edn.]) *Aristotle. Metaphysics*. 2 Vols. Oxford: Clarendon Press.
- Ross, W.D. (ed.) (1936) *Aristotle's Physics*. Oxford: Clarendon Press.
- Ross, W.D. (ed.) (1961, repr. 1967) *Aristotle. De anima*. Oxford: Clarendon Press.
- Ross, W.D. (ed.) (1964, repr. 1968) *Aristotle. Analytica Priora et Posteriora*. Oxford: Clarendon Press.
- Sachs, J. (1995) *Aristotle's Physics*. New Brunswick: Rutgers University Press.
- Sambursky, S. and Salomon, P. (1971) *The Concept of Time in Late Neoplatonism: Texts with Translation, Introduction, and Notes*. Jerusalem: Israel Academy of Sciences and Humanities, Section of Humanities.
- Seissl, T. (2024) 'Aristotle's "Now" and the Definition of Time: Method and Exegesis in Simplicius' Interpretation of *Physics* IV.10', *History of Philosophy & Logical Analysis*, 26 (2), pp. 366-86.
- Sonderegger, E. (1982) *Simplikios. Über die Zeit: ein Kommentar zum Corollarium de tempore*. Göttingen: Vandenhoeck & Ruprecht.
- Sorabji, R. (1976) 'Aristotle on the Instant of Change', *Proceedings of the Aristotelian Society*, 50, pp. 69-89.
- Sorabji, R. (1983) *Time, Creation, and the Continuum*. Ithaca (NY): Cornell University Press.
- Sorabji, R. (1989) 'Introduction' in Konstan, D. *Simplicius on Aristotle's Physics 6*. Ithaca: Cornell University Press, pp. 1-9.
- Sorabji, R. (1992) 'Introduction' in Urmson, J.O. *Simplicius. On Aristotle's Physics 4.1-5 and 10-14*. Ithaca: Cornell University Press, pp. 1-4.

Sergey Trostyanskiy, Simplicius on Aristotle's Paradox of the Now

- Stevens, A. (2021) *Simplicius: Sur le Temps. Commentaire sur la Physique d'Aristote et Corollaire sur le temps*. Paris: Vrin.
- Szlezák, T. (ed.) (1972) *Pseudo-Archytas über die Kategorien. Texte zur griechischen Aristoteles-Exegese*. Berlin & New York: De Gruyter.
- Thesleff, H. (ed.) (1965) *The Pythagorean Texts of the Hellenistic Period*. Åbo (Turku): Åbo Akademi.
- Ugaglia, M. (2023) 'Discussing Natural Motion: Definition of Time and Verbal Usage in Aristotle', *Aristotelica*, 4, pp. 35-78.
- Ulacco, A. (2016) 'The Appropriation of Aristotle in the Ps-Pythagorean Treatises' in Falcon, A. (ed.) *Brill's Companion to the Reception of Aristotle in Antiquity*. Leiden: Brill, pp. 202-17.
- Ulacco, A. (2017) *Pseudopythagorica doric*. Berlin: De Gruyter.
- Ulacco, A. (2020) 'The Creation of Authority in Pseudo-Pythagorean Texts' in Gielen, E. and Papy, J. (eds.) *Falsifications and Authority in Antiquity, the Middle Ages and the Renaissance*. Turnhout: Brepols, pp. 183-214.
- Urmson, J.O. (1992) *Simplicius. On Aristotle's Physics 4.1-5 and 10-14*. Ithaca: Cornell University Press.
- Vitelli, H. (1887-1888) *Ioannis Philoponi in Aristotelis physicorum libros octo commentaria*. 2 Vols. Berlin: Reimer (Commentaria in Aristotelem Graeca, 16-17.)
- Westman, R. (post Pohlenz, M.) (ed.) (1959) *Plutarchi moralia*, vol. 6.2, 2nd edn., Leipzig: Teubner.
- Wicksteed, P.H. and Cornford, F.M. (1934) *Aristotle's Physics*. Cambridge: Harvard University Press.
- Wilson, M. (2000) *Aristotle's Theory of the Unity of Science*. Toronto: University of Toronto Press.