

Thomas Wylton on the Ceasing of an Instant of Time

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1. Introduction

In a question of his *Quodlibet* about the instant of time¹ Thomas Wylton remarks that the issue of the ceasing (*desitio*) of the indivisible elements of change and time is a difficult one.² Such indivisible elements are the instantaneous phases of a change (the so-called *mutata esse* in Scholastic terminology) and the instants of time respectively. Their role in change and time is very much the same as the role of points in a line. In particular, since change and time are continua just as a line is, their indivisibles are not parts of them, just like points are not parts of a line, but they are boundaries of their parts. Any finite phase of a change or any finite period of time is bounded by two indivisibles—one at its beginning and another at its end—just like a finite line has an initial point and a final point. It is clear that for the indivisibles to play the role of boundaries of the parts of a continuum there must be more than one of them—actually very many of them—in a given continuum. Indeed, since a continuum is divisible into parts *ad infinitum*, there are infinitely many parts in a continuum and each part requires two distinct indivisibles as its boundaries. However, there is an important difference between the modes of existence of distinct indivisibles within a line and within a change or time respectively. Any two distinct points in a line exist simultaneously, that is, temporally together, whereas any two distinct indivisibles in a change or in time cannot exist simultaneously but only in temporal succession, that is, one after the other in time. Accordingly, when the indivisible at the beginning of a change or of a period of time exists, the indivisible at its end does not yet exist, and when the indivisible at its end exists, the indivisible at its beginning no longer exists. Thus, indivisibles in a change and time, unlike the indivisibles in a line, begin to exist

¹ On Wylton's *Quodlibet* see C. Trifogli, 'The Quodlibet of Thomas Wylton,' in C. Schabel (ed.), *Theological Quodlibeta in the Middle Ages: The Fourteenth Century*, Leiden 2007 (Brill's Companions to the Christian Tradition, 7), 231–266. The question on the instant of time is edited in L. O. Nielsen and C. Trifogli, 'Thomas Wylton's Questions on Number, the Instant, and Time,' *Documenti e studi sulla tradizione filosofica medievale* 16 (2005), 88–105. Following the numeration of Wylton's quodlibetal questions given in my paper 'The Quodlibet of Thomas Wylton,' in C. Schabel (ed.), *Theological Quodlibeta in the Middle Ages: The Fourteenth Century*, Leiden 2007 (Brill's Companions to the Christian Tradition, 7), 231–266. I will refer to this question as Q. 15.

² Wylton, *Quodlibet*, Q. 15, ed. Nielsen and Trifogli, 'Thomas Wylton's Questions', 103–104, [4.9.1].

and cease to exist.³ It is difficult, however, to give a satisfactory account of the beginning and ceasing of such indivisibles. As Wylton puts it, the problem concerns the ‘measure’ of these events, and what he means is the temporal measure. In other words, the general question that is difficult to answer is about the ‘when’ of these events’ occurrence: when does an indivisible in a change or in time begin to exist or cease to exist? Does this happen in time or at an instant? And if at an instant, which one? The instant at which the indivisible exists or another one?

In this paper I present how Thomas Wylton deals with these questions. I will first clarify the context of Wylton’s discussion; I will then introduce and explain his reply to these questions; finally, I will compare his reply to that of Walter Burley, which I have analysed in a recent paper.⁴

2. *The Aristotelian Context*

When in his quodlibetal question about the instant of time Wylton remarks that there are difficulties concerning the measure of the ceasing of indivisibles of change and of time, what he has in mind is a puzzle about the ‘now’, that is, the present instant, raised by Aristotle in the introductory and dialectical phase of his discussion of time in *Physics* IV.10.⁵ The puzzle is about the identity and diversity of the now. The question asked is whether the now is always different or always the same. And the puzzle points out that there are problems both with the alternative that the now is always different and with the alternative that it is always the same. What is relevant for our purpose is the argument that Aristotle’s puzzle puts forward against the alternative that the now is always different. This argument is the one Wylton refers to in his quodlibetal question and it is the focus of the present paper. The argument goes as follows: if the now is always different, it must cease to exist to give way to another now. This

³ This difference ultimately derives from the difference between the permanent being of a line and the successive being of change and time. For an informed and illuminating discussion of the distinction between permanent and successive things, see D. A. Di Liscia, ‘Walter Burley, Paulus Venetus und die Tradition *De Instanti* (mit dem “*Tractatus de instanti*” des Paulus Venetus nach Hs. Florenz, Biblioteca Nazionale Centrale, II. IV. 553, foll. 68va–69va),’ in A. Speer and D. Wirmser (eds), *Das Sein der Dauer*, Berlin 2008 (Miscellanea Mediaevalia, 34), 130–135.

⁴ C. Trifogli, ‘Walter Burley on the Incipit and Desinit of an Instant of Time,’ in F. Goubier and M. Roques (eds), *The Instant of Change in Medieval Philosophy and Beyond*, Leiden 2018 (Special issue of *Vivarium*, 55 [2017]), 85–102.

⁵ Aristotle, *Physics*, IV.10, 218a8–30.

conclusion is not controversial, because, as has been explained above, it reflects a common assumption about the successive mode of existence of time. It gives rise, however, to a difficult question about the ceasing to exist of the now, the temporal question: given that the now ceases to exist, when does this happen, that is, when does the now cease to exist or when has it ceased to exist? Aristotle apparently considers all possible answers to this question and shows that none of them works.

I shall examine the argument of *Physics* IV.10, together with Wylton's solution to it, in more detail in the next section. In this section, in order to give a complete picture of the Aristotelian context of Wylton's discussion, I will present the other essential ingredient of it. This is Aristotle's treatment of the sameness and diversity of the now in *Physics* IV.11.⁶ In this later chapter, after presenting his famous definition of time as the number of motion in respect of the before and after,⁷ Aristotle formulates what looks like his considered view about the sameness and diversity of the instant. The issue at stake seems to be exactly the same or very close indeed to that which gives rise to the puzzle of *Physics* IV.10, but this time Aristotle settles it in a straightforwardly positive way without any reservations. His considered view consists in a distinction: "The now is in a way the same, and in a way not the same," Aristotle claims.⁸ According to a common medieval formula used by Wylton to specify this distinction, the instant is the same according to its substance (*secundum substantiam*), but is not the same according to its being (*secundum esse*).⁹ This formula as such is not of great help to elucidate Aristotle's distinction because it is not at all clear what the substance and the being of an instant are. It reflects well, however, the main line of argument used by Aristotle to establish his distinction concerning the instant. This is the analogy between the identity and the diversity of

⁶ Aristotle, *Physics*, IV.11, 219b10–33.

⁷ Aristotle, *Physics*, IV.11, 219b1–2.

⁸ Aristotle, *Physics*, IV.11, 219b12–13, transl. E. Hussey, in: *Aristotle Physics Books III and IV*, Oxford 1983 (Clarendon Aristotle Series, 44).

⁹ E.g., Wylton, *Quodlibet*, Q. 15, ed. Nielsen and Trifogli, 'Thomas Wylton's Questions', 88, [1.1]: "... de nunc temporis, de quo distinguo sicut facit Philosophus 4 *Physicorum*, capitulo de tempore, ubi solvit quaestionem quam prius movebat in principio capituli, scilicet an unum et idem nunc maneat in toto tempore vel in alia et alia parte temporis sit aliud et aliud nunc, dicens quod nunc uno modo est idem, alio modo non-idem. Ipsum autem nunc idem est quod quid erat esse, *id est secundum substantiam*, esse autem alterum, *id est secundum esse* quod correspondet mobili in alia parte et alia spatii est aliud et aliud" (emphasis mine).

the instant in time and the identity and the diversity of the thing subject to a (non-substantial) change. The example used is that of a locomotion: the thing moving in a locomotion remains the same in substance throughout its locomotion but changes with respect to its accidents corresponding to the different locations that it comes to occupy: e.g., Coriscus remains the same in substance throughout his locomotion but his being in the market place and his being in the Lyceum are different. Aristotle's analogical argument then concludes that, as a moving thing remains the same with respect to its substance throughout its locomotion but varies with respect to its accidental being, so does the instant of time: it remains the same with respect to its substance throughout time but it varies with respect to its being.

Aristotle's view about the identity and diversity of the instant in *Physics* IV.11 is very obscure. The most obscure part of it is certainly the part about the identity of the instant with respect to its substance. It is difficult to make sense of the idea that there is an indivisible element of time that persists throughout time, that is, of the idea of a persisting present, as some Aristotelian scholars describe it.¹⁰ Many medieval commentators, however, think that this idea makes perfect sense. The widespread tendency in the medieval reception of Aristotle's physics is to accept Aristotle's account of the identity and diversity of the instant and to support it with detailed exegeses but without subjecting it to a close philosophical scrutiny, like that reserved to other aspects of Aristotle's doctrine of time (for example, the existence of time and the unity of time).

Thomas Wylton belongs to the large group of medieval commentators who accept Aristotle's view. He devotes two extensive discussions to it. One is in a question of his commentary on the *Physics*; the question asks "Whether the instant remains one and the same throughout the whole of time" (*Utrum instans maneat unum et idem in toto tempore*).¹¹ The other is in the quodlibetal question I have referred to above; the question asks "Whether the instant according to its substance is the proper

¹⁰ See, for example, E. Hussey's comments in *Aristotle Physics Books III and IV*, 152–157; U. Coope, *Time for Aristotle. Physics IV.10-14*, Oxford 2005 (Oxford Aristotle Studies), 125–139.

¹¹ This question, like the vast majority of Wylton's *Quaestiones libri Physicorum*, is still unedited. The quotations in this article are from manuscript Cesena, Biblioteca Malatestiana, Plut. VIII, sin. 2 (henceforth: C). I will refer to this question by its numbering within Wylton's questions on book IV of the *Physics*: IV, Q. 22.

measure of a thing subject to generation and corruption according to its permanent being” (*An nunc secundum substantiam sit mensura propria rei generabilis et corruptibilis secundum esse permanens eius*). Wylton’s discussion in both questions is not merely exegetical. It also contains a sustained philosophical analysis of the notions of the instant according to its substance and the instant according to its being. In particular, Wylton defends the view of the persistence of the instant against John Duns Scotus’s objections and comes out with an original interpretation of this view, which goes well beyond what Aristotle’s passage of *Physics* IV.11 explicitly says or suggests.¹²

The aspect of Wylton’s discussion in the two questions that concerns us here, however, is not his original interpretation of Aristotle’s view. Rather, it is the connection that Wylton points out between Aristotle’s treatment of the question of the identity and diversity of the instant in *Physics* IV.11 and that in *Physics* IV.10. The question is left without solution in *Physics* IV.10, but is given a positive solution in *Physics* IV.11. Therefore, it is very tempting to assume that the discussion of *Physics* IV.11 also provides the solution to the puzzle of *Physics* IV.10. This is indeed the assumption of the two most important commentators on the *Physics* of the thirteenth century: Thomas Aquinas and Giles of Rome.¹³ Despite such authoritative support, however, this assumption is not correct. The discussion of *Physics* IV.11 does not address at all the puzzle about the diversity of the instant of *Physics* IV.10. It does show that there is a sense in which the instant is always different but it does not show how this sense in which the instant is always different is not open to the objection raised

¹² I have presented Wylton’s discussion about the persisting instant in these two questions in C. Trifogli, ‘Thomas Wylton on the Instant of Time,’ in A. Zimmermann (ed.), *Mensch und Natur im Mittelalter*, Berlin 1991 (Miscellanea Mediaevalia 21/1), 308–318. For an outline of the content of the quodlibetal question, see also Nielsen and Trifogli, ‘Thomas Wylton’s Questions,’ 63–68.

¹³ In his commentary on the passage of *Physics* IV.10 Aquinas simply gives a literal exposition of the argument; in his commentary on the passage of *Physics* IV.11 he clearly assumes that this passage contains the solution to the initial puzzle of *Physics* IV.10, but he does not offer any explanation of this assumption. See Thomas Aquinas, *In octo libros Physicorum Aristotelis Expositio*, ed. P.M. Maggiolo, Turin 1954, IV, lectio XV, 274; lectio XVIII, 287–288. In his commentary on the passage of *Physics* IV.10 Giles devotes a very long discussion to the Aristotelian puzzle. Most of it is intended to explain and justify the various assumptions of the argument. At the very end of the discussion Giles anticipates that the solution to the question of whether the instant is the same in time is that based on the analogy between the instant and the thing subject to change used by Aristotle in the passage of *Physics* IV.11. In his commentary on the latter passage Giles explicitly remarks that in this passage Aristotle provides a solution to the puzzle of *Physics* IV.10 but, like Aquinas, he does not offer any explanation of this claim. See Giles of Rome, *Commentaria in octo libros Physicorum Aristotelis*, Venice 1502, repr. Frankfurt am Main 1968, lectio XVIII, fols. 97^{vb}–98^{va}; lectio XXI, fol. 101^{rb-va}.

by the puzzle of *Physics* IV.10. Unlike Aquinas and Giles, Wylton has a clear perception of this point, namely, that the argument of *Physics* IV.10 against the instant's being always different can be repeated for the case of the instant according to its being introduced in *Physics* IV.11.

Both in Wylton's *Physics*-question and in his quodlibetal question, the argument of *Physics* IV.10 against the ceasing of the instant is incorporated within an objection against the view that the instant in its substance persists in time (the view that Wylton supports). In the formulation of the quodlibetal question the objection is the following:

Furthermore, against the first opinion I first argue by showing that the argument of the Philosopher at the beginning of the chapter on time which he uses to prove that the instant according to its substance is not subject to corruption is not conclusive. For by the same argument I conclude that the instant according to its being is not subject to corruption but remains the same in time, because using the argument of the Philosopher but applying it to the instant according to its being I argue as follows. For I ask about the instant according to its being whether it is different now and beforehand or it is absolutely the same, just as he asks about the instant according to its substance ...¹⁴

This objection comes at the end of a long series of objections against the view that there is an instant that persists through time (the instant according to its substance) and has the role of measuring the permanent being of a thing subject to generation and corruption (as in the title of the quodlibetal question). All the preceding objections are attributed either to a doctor (*unus doctor*) or to his followers (*alii sequaces istius doctoris*). The doctor in question is Scotus but his followers have not been identified.¹⁵

¹⁴ Wylton, *Quodlibet*, Q. 15, ed. Trifogli-Nielsen, 94, [2.10.1]: "Praeterea, contra primam opinionem arguo, primo probando quod ratio Philosophi, per quam probat in principio capituli de tempore quod nunc secundum substantiam non corrumpitur, non concludat. Nam per eandem rationem concludam quod nunc secundum esse non corrumpitur, sed manet idem in tempore, quoniam arguo sic per rationem Philosophi, sed applicando eam ad nunc secundum esse. Quaero enim de instanti secundum esse, sicut ipse facit de instanti secundum substantiam, si sit aliud in tempore nunc et prius vel omnino idem ...". The parallel passage in *Quaestiones libri Physicorum*, IV, Q. 22 is in ms. C, fol. 68ra, lin. 35-39.

¹⁵ Wylton, *Quodlibet*, Q. 15, ed. Nielsen and Trifogli, 'Thomas Wylton's Questions', 89-94, [2.1]-[2.9.3] (the references to Scotus's discussion are given in the *apparatus fontium* of this edition).

Thus, the fact that Wylton uses the first-person 'arguo' to introduce this objection suggests that the objection is made up by Wylton himself against his own view.

The objection is based on two main claims. (a) One is about the argument that Aristotle uses to prove that the instant according to its substance persists: the argument is that of *Physics* IV.10 against the being always different of the instant. (b) The other claim is that this argument is not conclusive. The reason given for this second claim is that the argument can be applied to the instant according to its being; therefore, if it were conclusive, it would establish that it is not the case that the instant according to its being is always different, a conclusion that all parties involved in this dispute about the instant reject.

Wylton's reply to this objection consists in denying claim (a). He correctly points out that the argument Aristotle uses in *Physics* IV.11 to conclude the existence of a permanent instant is not that of *Physics* IV.10 against the instant's being always different but the argument based on the analogy between the instant and the thing subject to change.¹⁶ Wylton, however, accepts claim (b) together with the reason given for it. The argument of *Physics* IV.10 does indeed apply to the case of the instant according to its being, but the argument is not a valid one:

Therefore, I say that that argument does not conclude either about the instant according to its substance or about the instant according to its being that it persists throughout the whole of time, but it is a probable argument that reaches a false conclusion, and yet it is difficult to find a solution to it because it is difficult to give the measure of an indivisible either in a change or in time ...¹⁷

¹⁶ Wylton, *Quodlibet*, Q. 15, ed. Nielsen and Trifogli, 'Thomas Wylton's Questions', 103–104, [4.9]–[4.9.1]: "Ad alias rationes quas adduxi contra primam opinionem quas non reputo minus difficiles aliis respondeo secundum ordinem. Ad primam dico quod Philosophus ibi non adduxit illam rationem tanquam demonstrativam nec propter eam tenet conclusionem quam tenet de nunc secundum substantiam, sed propter aliam rationem quam ponit ubi solvit quaestionem de unitate instantis in toto tempore. Et ratio propter quam tenet illam conclusionem [istam] quod nunc est mensura mobilis [motu] sicut tempus est mensura motus, et per consequens ex unitate et alietate ex parte mobilis contingit concludere unitatem et alietatem ex parte ipsius nunc, ut superius deductum est." The parallel passage in *Quaestiones libri Physicorum*, IV, Q. 22 is in ms. C, fol. 68^{rb}, lin. 3–9.

¹⁷ Wylton, Wylton, *Quodlibet*, Q. 15, ed. Nielsen and Trifogli, 'Thomas Wylton's Questions', 104, [4.9.1]: "Unde dico quod illa ratio non concludit nec de nunc secundum substantiam nec de nunc secundum esse quod maneat in toto tempore, sed est ratio probabilis concludens falsum, tamen bene difficilis ad solvendum quia difficile est [videre] dare mensuram desitionis alicuius indivisibilis vel in motu vel in tempore, quia tamen non est ad propositum, ideo transeo."

In the quodlibetal question Wylton does not offer a solution to the argument of *Physics* IV.10,¹⁸ but he does offer it in the *Physics*-question, to which we now turn.

3. *The Argument against the Ceasing of the Instant and Wylton's Solution to It*

The following passage contains Wylton's formulation of Aristotle's argument of *Physics* IV.10:

Since there cannot be two things belonging to time that exist simultaneously except in the case that one of them contains the other, but it cannot be said about the instant that it contains something, given that the instant is indivisible, therefore, when one instant exists, the other instant is corrupted. Therefore, either (i) the instant is corrupted in itself, which is not true, because then it would simultaneously exist and not exist; or it is corrupted in another instant. (ii) Not in a prior instant, because then it would be corrupted before it existed. (iii) Not in a posterior instant, because then the instant in which it is corrupted will either be the one immediate to the instant in which it existed or one separated from it by a medium. Not in an immediate instant, because an instant is not immediate to an instant. Nor is it corrupted in an instant separated from it by a medium, because between those two instants an intermediate time intervenes, and in any time there are infinitely many instants, so that one instant will exist simultaneously with infinitely many instants, which is impossible.¹⁹

Let us focus on the logic of this argument. The first step is to move from the hypothesis that the instant is always different to the conclusion that the instant is subject to

¹⁸ See the very end of the passage quoted in the previous note.

¹⁹ Wylton, *Quaestiones libri Physicorum*, IV, Q. 22, ms. C, fol. 68^{ra}, lin. 39–68^{rb}, lin. 3: “Cum non possint esse aliqua simul de tempore nisi unum contineat aliud (ad C), quod non contingit dicere de instanti, cum sit indivisibile, quod aliquid contineat, ergo, cum unum est, aliud corruptum est. Aut ergo corrumpitur in se ipso, quod non est verum, quia tunc simul esset et non esset; aut corrumpitur in alio nunc. Non in nunc priori, quia tunc corruptum esset antequam esset; nec in posteriori, quia tunc illud instans in quo corrumpitur vel erit immediatum instanti in quo erat vel mediatum. Non immediatum, quia instans instanti non est immediatum. Nec corrumpitur in instanti mediato, quoniam, cum inter illa duo instantia cadat tempus medium, et in quolibet tempore sunt infinita instantia, ergo unum instans erit simul cum infinitis instantibus, quod est impossibile.”

corruption, that is, it ceases to exist. The question about the temporal measure of its ceasing to exist is then asked: when does an instant t cease to exist? An implicit assumption here is that an instant can only cease to exist at an instant, so that there are only three possible answers to this question: instant t ceases to exist either (i) at t or (ii) at an instant s before t or (iii) at an instant w after t . The first alternative (i) is ruled out because it would lead to the conclusion that instant t would simultaneously exist and not exist. The second alternative (ii) is obviously unsound: instant t cannot cease to exist before it exists. The third alternative (iii) is further articulated: the later instant w at which t ceases to exist is either immediate to t or separated from t by an intervening period of time. Because of the continuity of time, the first case is not possible: instants are not immediate to one another but between any two instants there is a period of time and hence infinitely many instants. But then the second case is not possible either because instant t would persist throughout the whole period of time between itself and the instant w of its corruption, which is against the assumption that it lasts for exactly one instant or, more literally, against the assumption that distinct instants cannot exist simultaneously but only one after the other.

Following the context of Aristotle's discussion, Wylton explicitly formulates the argument for the case of the temporal instant. He clearly assumes, however, that it applies to all instantaneous things, things that last for only one instant. The other relevant things of this kind in Aristotle's physics are the instantaneous phases of a change, the so-called *mutata esse*. Accordingly, in Wylton's view, an appropriate solution to this argument is one that is valid for all instantaneous things. Thus, he considers and rejects a solution to the argument that appeals to the alternative property of the instant of being that it is a measure because this solution would leave the problem open for the case of the *mutatum esse*, which is not a measure.²⁰

²⁰ Wylton, *Quaestiones libri Physicorum*, IV, Q. 22, ms. C, fol. 68^{rb}, lin. 9–17: "Ad rationem istam tamquam sophisticam vel probabilem solum respondetur multis modis. Uno modo dicitur quod instans secundum esse non corrumpitur in aliquo instanti nec in aliqua mensura. Est enim mensura per essentiam nec eius est mensura altera eiusdem generis. Contra: haec responsio tollitur, si fiat ratio de mutato esse in motu, cuius mensura est instans secundum esse, in quo instanti corrumpitur. Et est eadem difficultas hic, sicut in instanti temporis, et cum hoc hic oportet dare mensuram extrinsecam in qua corrumpitur vel deficit."

The alternative solution that Wylton supports is introduced in a very condensed way as follows:

Therefore, if the argument is made about the instantaneous phase of a change (*mutatum esse*), it is replied in another way that it is not corrupted in an instant, as is assumed in the argument, but in time. For an instant ceases to exist in virtue of the ceasing of a time, the ceasing of which is divisible.²¹

The crucial aspect of this solution is the rejection of the implicit premise of the argument of *Physics* IV.10 that the corruption of an instant *t* can only occur at an instant (either at *t* itself or at a prior or at a posterior instant). While this premise is supposed to exhaust all possible alternatives about when the corruption of instant *t* occurs, it neglects the alternative that the corruption of the instant could occur in time, that is, in an extended period of time after *t*. In the solution approved by Wylton instead this alternative is the one which does not encounter any of the difficulties of the others and which therefore is the right one.

As to what it means for an instant (or an indivisible phase of a change) to cease to exist in time, the short explanation given in the last sentence of the passage just quoted, namely, that an instant ceases to exist in virtue of the ceasing to exist of a time, is not very illuminating. It seems to rely on some implicit assumptions about the ontology of time and of the instant. One natural suggestion about what these assumptions could be is that what is at work here is a kind of reductionist account of the instant according to which the ceasing to exist of an instant is reducible to the ceasing to exist of a period of time. This reductionist account could then be used to give an easy solution to the problem of the ceasing of an instant along the following lines: there is nothing more to the ceasing of an instant apart from the ceasing of a period of time to which that instant belongs. However, this natural reductionist reading of the claim that an instant ceases to exist in virtue of the ceasing of a period of time is not that adopted by Wylton.

²¹ Wylton, *Quaestiones libri Physicorum*, IV, Q. 22, ms. C, fol. 68^{rb}, lin. 17–20: “Ideo aliter dicitur, si fiat argumentum de mutato esse, quod ipsum non corrumpitur in aliquo instanti, ut accipitur in ratione, sed in tempore. Per hoc enim quod tempus aliquod cedit, cuius cessio est divisibilis, cedit instans.”

Note that in the passage above Wylton is reporting the opinion of others. He clearly agrees with this opinion that what is wrong with Aristotle's argument is the premise that an instant ceases to exist in an instant rather than in time. In rejecting this premise, however, he does not simply appeal to the reductionist assumption as this opinion does. When later on in his discussion he presents his own assessment of this opinion, he provides an explanation of the ceasing of an instant according to which such a ceasing is dependent on the ceasing of a period of time but is not reducible to it.

This is how Wylton's explanation goes:

For an indivisible ceases to exist only because of the ceasing of a divisible. Accordingly, the instant that is now present ceases to exist only because of the fact that it becomes past; but it does not become past because of the mere succession of an indivisible. The proof of this claim is evident. For, once the instant that is now present has ceased to exist, I ask whether there is something intermediate between the instant that is then present and the instant that has just become past or there is not. If there is something intermediate, then something divisible has ceased to exist, and this is the intended conclusion. If there is not something intermediate, therefore the instant that is now present and the instant that has just become past are simultaneous. And it follows from this 'therefore, they are totally simultaneous', because they are indivisibles. Therefore, since one of them is present, the other is present too, and thus it has not ceased to exist. Therefore, the proposition that states that an indivisible ceases to exist in an indivisible way should always be denied. And the reason why an indivisible ceases to exist in a divisible way is because it ceases to exist as the result of the ceasing of something else that is divisible.²²

²² Wylton, *Quaestiones libri Physicorum*, IV, Q. 22, ms. C, fol. 69^{ra}, lin. 7–17: "Indivisible enim non cedit (cedit C) nisi per successionem alicuius divisibilis (corr. ex indivisibilis C). Unde instans nunc praesens non cedit nisi per hoc quod fit praeteritum, non autem fit praeteritum per solam successionem indivisibilis, cuius probatio evidens est. Nam ipso cesso, quaero an inter instans quod tunc est praesentialiter et nunc quod iam factum est praeteritum sit medium vel non. Si sic, ergo aliquod divisibile cessit, et hoc est propositum. Si non sit medium, ergo sunt simul, et sequitur 'ergo sunt totaliter simul', cum sint indivisibilia. Ergo ex hoc quod unum est praesens, et aliud praesens, et per consequens non est cessum. Igitur semper est haec propositio neganda, quod indivisible cedit indivisibiliter. Causa autem quare cedit divisibiliter est quia cedit ad cessionem alterius quod est divisibile."

One preliminary move of Wylton's explanation is to understand the claim that an instant ceases to exist in time in the sense that the ceasing of an instant is such that it is not the case that that instant only ceases to exist but a whole period of time ceases to exist too, that is, a period of time starting from that instant. The intuition here is that one cannot just cut off an instant from time; on the contrary, one must always cut off a slice of time together with an instant. The proof of the claim thus interpreted is then the following. Suppose that the present instant t ceases to exist, that is, becomes past; and suppose that the new present instant is w . Because of the continuity of time, instants are dense so that between t and w there is a period of time. But this period of time is past too, given that it is prior to the new present instant w . Hence, it is not only instant t that has become past, but the whole period of time between t and the actual present instant w has become past too. With the concise formulation used by Wylton at the end of the passage just quoted: an indivisible ceases to exist in a divisible way (*divisibiliter*), that is, together with the ceasing to exist of something divisible, that is, in the present case, a period of time.

Much light on Wylton's solution is shed by his reply to an objection to it. The objection says that the claim that an instant of time ceases to exist in a divisible way is incompatible with the indivisible existence of the instant:

But against this there is the following objection: from the mere fact that the instant according to its being is indivisible it follows that it ceases to exist in an indivisible way. For, suppose that the opposite is the case, that is, that its corruption is divisible in time. Since everything that is corrupted in a divisible way always has being until the terminus of its corruption, it follows that it exists in a divisible way, so that it will have a being that lasts for some time.²³

²³ Wylton, *Quaestiones libri Physicorum*, IV, q. 22, ms. C, fol. 68rb, lin. 20-25: "Sed contra hoc videtur esse: eo ipso quod instans secundum esse est indivisibile sequitur quod cedit indivisibiliter. Nam detur oppositum, quod eius corruptio sit divisibilis in tempore. Cum omne quod corrumpitur divisibiliter semper ante terminum corruptionis habeat esse, sequitur quod divisibiliter erit, ita quod habebit esse durativum."

The general idea on which this objection relies is that there must be an isomorphism between the way in which something exists and the way in which it ceases to exist, so that things that exist in a divisible way cease to exist in a divisible way whereas things that exist in an indivisible way cease to exist in an indivisible way. Therefore, since an instant exists in an indivisible way, that is, just for one instant, it must also cease to exist in an instant, and not in time, which is contrary to what Wylton's solution assumes.

Wylton replies to this objection as follows:

... about the assumption made that 'if the instant ceases to exist in a divisible way, therefore it exists in a divisible way,' I draw a distinction about 'ceasing', because it can either express (i) the way to having ceased to exist or (ii) the having ceased to exist itself. If it is taken in the first way (i), then I say that, as the instant ceases to exist, it ceases to exist when it exists. And it does not follow from this that 'therefore it at the same time exists and does not exist', because what is on its way to ceasing to exist before it has ceased to exist exists, and for then it should not be conceded that it does not exist. If by 'ceasing' the having ceased to exist is understood (ii), then I say that it does not follow 'it has ceased to exist in a divisible way, that is, because of the ceasing of something divisible, therefore it exists in a divisible way', because when it has ceased to exist it does not exist. But I do concede that its having ceased to exist is divisible and that it is not possible to give a first instant or a first part of time in which it has ceased to exist, just as it is not possible to give the first part of a change or a first instant of a change after its initial terminus or a first part of time, as has been proved in *Physics* VI.²⁴

Thus, Wylton thinks that the objection arises from an ambiguity about ceasing (*cedere*): when we talk about something's ceasing to exist we can either mean that (i) it is on its way to having ceased to exist but has not yet ceased to exist or that (ii) it has already ceased to exist. The having ceased (*cessum esse*) to exist is here

²⁴ Wylton, *Quaestiones libri Physicorum*, IV, Q. 22, ms. C, fol. 69^a, lin. 18–29: "cum accipitur 'si cedit divisibiliter, igitur divisibiliter est', distingo de hoc quod est cedere, ex hoc quod potest dicere viam ad cessum esse vel ipsum cessum esse. Si primo modo, tunc dico quod, sicut cedit, cedit quando est. Nec sequitur 'ergo simul est et non est', quia quod est in cedendo ante cessum esse est, et pro tunc non est concedendum quod non est. Si intelligatur per cedere cessum esse, dico quod non sequitur 'cessum est divisibiliter, quia scilicet ad cessionem alicuius divisibilis, ergo divisibiliter est', quia quando cessum est non est. Sed bene concedo quod suum cessum esse est divisibile, nec contingit dare primum instans, nec primam partem temporis in quo cessum est, sicut nec contingit dare primam partem motus, nec primum instans post terminum a quo nec temporis, ut probatur sexto *huius*."

understood as the terminus to which the ceasing to exist as a way leads and as temporally posterior to it. In terms more intelligible to us, let us distinguish the two cases using the present tense of the verb 'to cease' for the first case and the past tense for the second case, so the distinction becomes that between 'to cease to exist' and 'to have ceased to exist'.

It is important to point out that to this distinction about ceasing there corresponds a distinction between two ways of understanding the original Aristotelian question about the temporal aspects of the ceasing of the instant. Understood in the first way, the question asks when an instant ceases to exist (that is, it is on its way to having ceased to exist). Understood in the second way, it asks when an instant has ceased to exist. For Wylton, both questions can be answered in a non-aporetic way, but the respective answers are different. The answer to the first (present-tense) question is that an instant t ceases to exist at t , that is, when it exists. The answer to the second (past-tense) question is that instant t has ceased to exist in time, that is, in the period of time starting from t .

I will return to the answer to the first (present-tense) question in the next section. It is the answer to the second (past-tense) question that is relevant for the solution of the argument of *Physics* IV.10 that Wylton supports. He points out that this answer is not open to the objection against his solution. If instant t has ceased to exist in a period of time, it does not follow that it exists in a divisible way, because it does not exist at all in that period of time. The having ceased to exist is a state in which something does not exist. When it has ceased to exist, instant t does not exist. Therefore, the divisibility of the having ceased to exist of an instant is associated to its non-being and not to its being. And the non-being of an instant is indeed divisible, that is, lasts for a time, so that the association between the divisibility and the non-being of an instant is not problematic (is not in contrast with any isomorphism).

Wylton admits, however, that the divisibility associated to the non-being of the instant prevents an answer to the more specific question of when instant t has first ceased to exist. Instant t has ceased to exist in the period of time starting at t , but there is no instant within that period (or also a part of that period) in which it has first ceased to exist. Take any instant w in that time. Instant t was already a non-existent

in the period of time between *t* itself and instant *w*, so that *w* is not the first instant of the non-existence of *t*.

4. Comparison between Wylton's and Burley's Solutions

Wylton and Burley have very similar views about the two general doctrinal areas to which the particular issue of the ceasing to exist of an instant of time belongs. These are Aristotle's theory of time and the so-called *incipit* and *desinit* problem, that is, the problem of assigning temporal limits to the beginning and ceasing of things. As to time, both commentators hold a strongly realist view about its ontological status, according to which time is an extra-mental thing distinct from change, and defend this view with very similar arguments.²⁵ As to the *incipit* and *desinit* problem, they both devote an extensive discussion to the case of permanent things. Burley's treatise *De primo et ultimo instanti* is one of the most important medieval works on this problem,²⁶ and the question on the same topic discussed by Wylton in his *Physics-Commentary* is a major source of it.²⁷ Finally, both commentators offer an explicit solution to the argument of *Physics* IV.10 about the ceasing to exist of the instant. Therefore, because the two commentators deal with this argument within the same theoretical background, it makes good sense to compare their respective solutions; more than that, one may even expect their solutions to be the same. Surprisingly, however, this is not the case: the two solutions are different and *prima facie* in conflict.

²⁵ See C. Trifogli, 'Il problema dello statuto ontologico del tempo nelle *Quaestiones super Physicam* di Thomas Wylton e di Giovanni di Jandun', *Documenti e studi sulla tradizione filosofica medievale* 1 (1990), 491–548; C. Trifogli, 'Motion and Time', in A.D. Conti (ed.), *A companion to Walter Burley. Late Medieval Logician and Metaphysician*, Leiden 2013 (Brill's Companions to the Christian Tradition, 41), 267–299; C. Trifogli, 'The Reality of Time in the Commentary Tradition on the *Physics*: the case of Wylton and Burley', in G. Fioravanti, C. Leonardi and S. Perfetti (eds), *Il commento filosofico nell'Occidente Latino (secoli XIII–XV)*, Turnhout 2002 (Rencontres de Philosophie Médiévale, 10), 233–251.

²⁶ It is edited in H. and C. Shapiro, 'De primo et ultimo instanti des Walter Burley', *Archiv für Geschichte der Philosophie* 47 (1965), 159–173. On this treatise and Burley's application of the logic of first and last instants presented in it to some issues about the Eucharist, see the recent paper by E. D. Sylla, 'Mathematics and Physics of First and Last Instants: Walter Burley and William of Ockham,' in F. Goubier and M. Roques (eds.), *The Instant of Change in Medieval Philosophy and Beyond*, Leiden 2018 (Special issue of *Vivarium*, 55 [2017]), 103–129.

²⁷ For the edition of Wylton's question and its close relationship with Burley's treatise see C. Trifogli, 'Thomas Wylton's Question *An contingit dare ultimum rei permanentis in esse*,' *Medieval Philosophy and Theology* 4 (1994), 91–141.

As we have seen, the crucial ingredient of Wylton's solution consists in rejecting the assumption of the Aristotelian argument that the ceasing to exist of an instant t occurs at an instant, and arguing for the claim that it occurs in time. On the contrary, Burley's solution does not challenge the Aristotelian assumption. Rather, its crucial ingredient consists in defending one of the three alternatives in which that assumption is articulated, namely, that the ceasing to exist of instant t occurs at instant t itself. Burley then argues that, contrary to what the argument assumes, it does not follow from this that instant t simultaneously exists and does not exist when it is subject to corruption. Instant t both exists and is subject to corruption at instant t , but it is not also the case that it does not exist at t .²⁸

In short, for Wylton the ceasing to exist of instant t occurs in the time after instant t , whereas for Burley it occurs at instant t itself. Isn't there a sharp conflict between these two replies? I do not think that this is the case. And the reason for this is that they are not replies to the same question. The relevant distinction here is that drawn by Wylton in the passage quoted above, namely, the distinction between the present-tense question and the past-tense question. As I pointed out in my paper on Burley's view about the ceasing of the instant,²⁹ Burley's reply addresses the present-tense question "when does instant t cease to exist?", whereas Wylton's reply answers the past-tense question "when has instant t ceased to exist?" Thus, the contrast between the two commentators resides in their interpretations of the Aristotelian argument about the ceasing of the instant. In Wylton's interpretation, the argument asks the question about the having ceased to exist of the instant (the past-tense question), whereas in Burley's interpretation it asks the question about its ceasing to exist (the present-tense question).

Wylton's interpretation is the correct one from the exegetical point of view: Aristotle uses the past-tense 'has ceased to exist' in his formulation of the question.³⁰ On the other hand, Burley's unorthodox interpretation of the Aristotelian argument gives rise to a very sophisticated discussion of the notion of ceasing to exist and its

²⁸ Trifogli, 'Walter Burley on the *Incipit* and *Desinit* of an Instant of Time,' 90–91.

²⁹ Trifogli, 'Walter Burley on the *Incipit* and *Desinit* of an Instant of Time,' 91.

³⁰ See, for example, Coope, *Time for Aristotle*, 26–27.

applicability to the case of indivisibles like instants.³¹ A proper assessment of the respective merits of the two interpretations is not so important in this context. What is more relevant is to compare the replies of the two commentators to each of the two questions. As to the present-tense question, it is clear from the passage quoted above that Wylton's reply is the same as that of Burley, that is, instant t ceases to exist at instant t itself, so that it ceases to exist when it exists. What about Burley's reply to the past-tense question? Like Wylton, Burley too is led to distinguish between the two questions in dealing with an objection against his solution to the Aristotelian argument. And his reply to the past-tense question is conceptually (although not linguistically) the same as that of Wylton, namely, that instant t has ceased to exist in the period of time starting at t but there is not an instant within this period at which t has first ceased to exist.³²

Conclusion

The puzzle about the ceasing of the instant of time in *Physics* IV.10 is very challenging for Aristotelian commentators. The puzzle itself is a difficult one, because it seems to rule out all the possible ways in which an instant can cease to exist. But it does need to be solved, given that the assumption that there are many instants existing one after the other plays an essential role in Aristotle's account of time. Aristotle, however, does not provide an explicit solution to it. What is more, other parts of Aristotle's discussion of the instant -most notably his treatment of the sameness and diversity of the instant of *Physics* IV.11- complicate the task of finding an appropriate solution to the puzzle because they may induce commentators to look for such a solution in the wrong direction. In this paper I hope to have shown that Thomas Wylton takes up this challenge and deals with it in a brilliant way. The most fundamental merit of Wylton's approach is that it sets the puzzle of *Physics* IV.10 in its correct theoretical framework. The puzzle is about the temporal account of the ceasing of the instant, that is, about the questions of 'when' an instant ceases to exist or of 'when' has ceased to exist. Questions of this kind naturally belong the domain of the *incipit-desinit* theory. And it is to this theory that Wylton turns to find a solution

³¹ Trifogli, 'Walter Burley on the *Incipit* and *Desinit* of an Instant of Time,' 92–96.

³² Trifogli, 'Walter Burley on the *Incipit* and *Desinit* of an Instant of Time,' 100–102.

to the puzzle. The solution he proposes involves counter-intuitive claims like the claim that an indivisible thing has ceased to exist in a divisible thing or that an indivisible thing ceases to exist when it exists. Wylton takes great care to show that these claims make perfect sense when interpreted within the logic of the *incipit-desinit*. His discussion of the logic of the ceasing of the instant is extremely clear, compelling, and subtle. Although Wylton himself does not strictly speaking belong to the *Calculatores*, the *incipit-desinit* theory is indeed a crucial part of the *Calculatores* theoretical framework. Thus, Wylton's discussion shows how powerful the *Calculatores* approach can be when applied to traditional problems of Aristotle's natural philosophy.