

MAREK GENSLER

THE CONCEPT OF TIME IN A COMMENTARY
ON THE *PHYSICS*
ATTRIBUTED TO ANTONIUS ANDREAE



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Even though commenting Aristotle's *Physics* belonged to the curriculum in the study of arts at the *studia* and universities of the 1290s, brother John Duns must have preferred *De anima* as his main reading in natural sciences and, as a result, left no commentary on the *Physics* behind. Although his choice did not stem from some disregard for the matters physical, since he discussed them at length in his commentaries on the *Metaphysics* and *Sentences*, yet the absence of a genuine exposition of the problems discussed in the *Physics* must have been causing some confusion amongst his disciples¹ and followers, especially after Scotism had been adopted, at first unofficially, as the doctrine of the Seraphic Order. The missing parts of his teaching soon started being supplemented by other Franciscan scholars in order to cover the whole spectrum of philosophical disciplines. One of the first Scotist philosophers of nature was Antonius Andreae, a Catalan friar and disciple of Duns Scotus. He was the author of two works in natural philosophy: a treatise *De tribus principiis naturae* and a commentary on the *Physics*. Unfortunately, the latter work seems to have been lost and we know about it only from a remark in the former.¹

There exists, however, a commentary on the *Physics* attributed to Antonius Andreae. The library of Gonville & Caius College in Cambridge² possesses a manuscript (ms 368 (590)), first mentioned by Martí de Barce-

¹ Antonius mentions his commentary in the initial question of his *De tribus principiis naturae*, Venetiis 1489, f. 1va: «Dico quod tempus est idem realiter ipsi motui licet formaliter ab eo distinguitur, ut exposui quarto *Physicorum*». *De tribus principiis naturae* is the earliest of Antonius' known works but the introductory question might have been composed later for the revised version of the treatise. Cf. M. GENSLER, *The making of a 'Doctor Dulcifluus': Antonius Andreae and his position in formation of Scotism*, «Anuari de la Societat Catalana de Filosofia», VIII, 1996, pp. 60-61.

² I would like to express my thanks to the Master and Fellows of Gonville & Caius College, Cambridge for their kind permission to publish the manuscript.

lona,³ which contains certain *Questiones Antonij super Phisica*. The title was evidently added later, so it is difficult to say whether its author had any information concerning the authorship of the text. It is possible that he could have been influenced by the fact that the other text included in the codex, the *Quaestiones in XII libros Metaphysicae*, is indeed the work of Antonius Andreae. It is also possible that he was convinced of Antonius Andreae's authorship of the *Quaestiones in VIII libros Physicorum* judging from the information the questions themselves provide. The analysis of the initial question⁴ shows that it is largely modelled on the initial question of Antonius Andreae's *De tribus principiis naturae*. The name of Antonius, however, is conspicuously absent,⁵ even though the author makes explicit references to a number of other Franciscan thinkers active in the first half of the 14th century: Peter Auriol, Francis of Marchia, Landulf of Caracciolo, Geraldus Odonis and William of Ockham. Some of these references enable us to establish an approximate date for the commentary: it must have been written no sooner than 1325.⁶ Assuming that Antonius Andreae lived until 1333 it is not impossible that he might have been the author of the commentary. It is doubtful, however, that Antonius, who had long been back in his native Aragon, had such a good knowledge of contemporary Franciscan masters active at Paris. What is more likely is that the commentary was composed by his younger *confrater* who must have been in touch with the *Studium Generale* in Paris in the second quarter of the 14th century.

The questions to the fourth book of the *Physics* are divided almost evenly into two parts corresponding to the main subjects discussed by Aristotle: the problem of place is the subject of first four questions, time is covered by the following four, with one more question devoted to number inserted into that group. The author of the commentary formulates his ques-

³ Cf. P. MARTI DE BARCELONA, *Fr. Antoni Andreu, O.M., doctor dulcifluus*, «Criterion», V, 1929, pp. 312-346.

⁴ For the edition of the question, see: M. GENSLER, *The Question on the Subject-matter of Physics from the 'Quaestiones in VIII libros Physicorum' Ascribed to Antonius Andreae*, «*Studia Mediewistyczne*», XXXII, 1997, pp. 23-46.

⁵ For a detailed comparison of the two questions, see: M. GENSLER, *Two quaestiones concerning the subject matter of physics, an early Scotist reception of Aristotle*, in: J. Marenbon (ed.), *Aristotle in Britain During the Middle Ages*, Turnhout, Brepols, 1996, pp. 195-209.

⁶ Cf. N. Kretzmann & al. (eds.), *The Cambridge History of Later Middle Ages*, Cambridge, CUP, 1982, p. 861. For a detailed analysis of the question, see: M. GENSLER, *The Concept of Vacuum in a Scotist 'Physics' Commentary Attributed to Antonius Andreae*, «*Miscellanea Mediaevalia*», XXV, 1998, pp. 168-178.

tions on time as follows: he starts with *Utrum tempus sit aliqua entitas praeter animam existens* (Whether time is an entity existing beyond the soul), the next question is *Utrum instans secundum substantiam sit idem vel maneat idem et unum in toto tempore* (Whether an instant is or remains substantially the same and one in all time). After the inserted question on number (*Utrum numerus sit aliqua realis entitas absoluta distincta essentialiter a rebus numeratis*) he discusses two more questions *Utrum tempus sit mensura cuiuslibet durantis plus quam per instans* (Whether time is a measure of anything that lasts longer than an instant) and *Utrum tempus sit idem realiter cum motu* (Whether time is really the same as motion), the last question being left unfinished, missing the discussion of some theses and the reply to *rationes principales*.

Even incomplete, the questions provide enough material for discussion of the author's ideas concerning time, both in the broad and in the narrow sense. The discussion is facilitated by the author himself, whose analysis of the issue abounds with distinctions, sets of properties, conditions and criteria, clearly showing the scholastic character of the work. It seems worthwhile, therefore to start with those distinctions, which give some insight to the author's understanding of the concepts and their mutual relations.

In the beginning we are presented with a number of ideas universally accepted by philosophers. He states that it is generally agreed that eternity, *aevum* and time, together with instant understood in four different ways, are certain measures. Quoting Boethius' *De consolatione* the author says that eternity is a measure proper only for God's existence, which has no beginning or end, whereas *aevum* is an appropriate measure for all permanent beings, since it is separated from any kind of motion.⁷ In presenting time as the measure of mobile or successive things, he invokes the authority of pseudo-Dionysian *De divinis nominibus*; he adds that being the measure of motion time is, consequently, accidentally a measure of rest.⁸ Both *aevum* and time measure duration, since it is characteristic not only of tem-

⁷ ANTONIUS ANDREAE (?), *Quaestiones in VIII libros Physicorum*, f. 90r: «Aeternitas in quantum est mensura divinae existentiae ubi nec principium nec finis, de qua Boethius tertio *De consolatione* dicit: "Aeternitas est interminabilis vitae simul et tota possessio" [...] Aevum autem est mensura cuiuslibet permanentis sive sit substantia, sive sit accidens, dummodo praescindit a mutatione quacumque, ita quod suum subiectum est sempiternum».

⁸ *Ibidem*: «Tempus dicitur quod est mensura mobilis et motus et per accidens quietis. [...] Unde tempus solum est mensura successivorum, de quo dicit Dionysius libro *De divinis nominibus*, capitulo 31º: "Tempus vocant quod in generatione et corruptione et variatione aliter se habet"».

poral but also for permanent beings, like angels.⁹ The concepts of instant discussed by our author are somewhat puzzling, as only one of them, the instant of time, measures change. It is, namely, an elementary change of a subject, called *mutatum esse*. The remaining three types of instants measure priority and posteriority in nature, cognition and origin (which is supposed to follow the priority of nature).¹⁰ It is clear that they refer to other than temporal senses of the term ‘priority’ and, consequently, form other types of measure. Indeed, the author concedes that measuring duration is only one out of five types of measures.¹¹

Having accepted that eternity, *aevum*, time and instant are measures the author proceeds to discuss the concept of measure. Accordingly, he states that a measure gives us determinate knowledge about the quantity of something, when it is applied to it. Measuring involves three parties: the measured object, the intellect and the measure itself; it is done either in a replicative way, when the measure is smaller than the object it measures, or in an explicative way, when the object is smaller than the measure, or in both ways, when the measure and the object are equal. Measure, as such, can be natural or established by man. All measures must satisfy six conditions. They must be prior to the *mensuratum* and better known. They must be simple, uniform (or regular), independent and of the same kind (*unigena*). The final condition is elaborated into a long digression concerning the univocity of being, a Scotist doctrine duly supported by our author.¹²

⁹ *Ivi*, f. 90v: «Est mensura durationis, sicut tempus mensurat motum et aeviternitas scilicet est mensura durationis angelorum et omnium permanentium».

¹⁰ *Ivi*, f. 90r-v: «Quarta mensura est instans temporis quod mensurat mutationes instantaneas. Unde sicut motus mensuratur tempore, ita mutatum esse mensuratur instanti. Unde solum mensurat mutata esse vel mutationes subiectivas. Unde non mensurat substantiam nisi ut est sub mutatione subiectiva vel sub mutato esse. Quinta est instans naturae [...] Per prioritatem naturae nihil aliud intelligo quam praesuppositionem huius ab hoc in quadam alteritate [...] Sed tamen passio dicit alteritatem naturae a subiecto, et ideo subiectum praecedit passionem in instanti naturae. Sexta autem mensura est instans naturalis intelligentiae et istud mensurat quidditates secundum quod una apta nata est intelligere sine altera, [...] et ideo si unum praecedat in intellectione est mensura naturalis vel intellectus, sicut substantia cuius cognitio praecedit cognitio accidentis, et hoc naturaliter, quamvis propter vires subiectivas prius nobis originetur cognitio accidentis. Septima mensura est mensura privationum et ista respicit principium et principiatum, ita quod secundum istam principium praecedit principiatum prioritate originis. Unde bene sequitur: est prioritas naturae, igitur originis, sed non econverso, quia naturae prioritas addit alteritatem in natura; et hoc de isto».

¹¹ *Ivi*, f. 90v: «Quintuplex ponitur genus mensurarum per aliquem modum a predictis. Primum est mensura perfectionis, secundum causationis, tertium coordinationis, quartum innoescientiae, quintum durationis».

¹² *Ibidem*: «Per quamcumque mensuram accipitur notitia de mensurato. Probatur: per

The presentation of conditions is followed by conclusions concerning measure, which partly recapitulate, partly elaborate on the above propositions. In the first place the author refutes the Boethian contention that eternity is the measure of God by pointing out that it is impossible, since eternity is less perfect than God and dependent on it, and therefore cannot be His measure.¹³ Secondly, he rejects the idea that permanent entities can be measured by time. He argues here that it is impossible to accept that time, which is successive, is the measure of something permanent, since the measure and the *mensuratum* must be proportionate, and essentially identical, whereas ‘successive’ and ‘permanent’ are opposites. By the same token, permanent being cannot be measured by eternity, which is proper to God alone. The conclusion is drawn to the extreme when our author argues against Thomas Aquinas that even operations of angels must be measured by a measure corresponding to their substance, i.e. by *aevum*.¹⁴ The same mode of thinking is applied else-

quamcumque mensuram intellectus veridice certificatur de mensurato, ut patet inducendo in simul, igitur <etc.> [...] Mensurare nihil aliud est quam aliquid secundum quantitatem minus notam per accidentiam magis notam certificare et mensurare [...] Mensura nihil aliud est quam intellectus de quantitate rei determinata certitudo [...] Mensura importat respectum triplicem: unum ad intellectum alium ad rem mensuratum alium ad mensuram [...] Mensura est duplex: quaedam ex natura, quaedam est mensura nobis. Mensura quae est ex natura est quae est ex natura rei et non aliqua mensuratione humana. Mensura nobis dicitur quae non mensurat ex natura rei, sed ex institutione humana [...] Triplices est genus mensurarum in generali, secundum modum triplicem mensurandi: aliquando aliquid mensuratur replicative, aliquando explicative, aliquando explicative et replicative. Hoc patet. Aliquando mensuratum excedit mensuram, aliquando exceditur. Similiter aliquando excedit et exceditur. Aliquando aequantur sibi mensura et mensuratum [...] Condiciones mensurae sunt sex. Prima est quod de ratione mensurae est prioritas [...] Secunda est quod de ratione mensurae est notioritas. Probo, quia illud per quod aliud cognoscitur notius est quam quod cognoscitur. Sed per mensuram res mensurata cognoscitur, ex secundo dicto, igitur <etc.> [...] Tertia condicio est quod de ratione mensurae est simplicitas. Patet, quia quanto aliquid magis excedit ad simplicitatem, tanto magis ad rationem mensurae. Quarta <condicio est> quod de ratione mensurae est uniformitas vel regularitas. Probo, quia nihil potest regulari per illud quod est irregulare et difforme, sed tantum habet mensurari mensura, igitur <etc.>. Quinta condicio <est> quod de ratione mensurae est independentia. Probatur, quia de ratione prioris, ut prius, est independentia [...] Istam tamen independentiam intelligo non absolute, quod nullo modo dependeat, quia sic nulla tantum est mensura, sed habet intelligere respectu mensurati. Sexta condicio <est> quod de ratione mensurae est unigenitas. Patet, quia mensura est unigena mensuratio [...] Etiam sic intendendo non solum secundum rationem analogicam, [...] sed etiam unitive [...] Propter quod teneo quod tam inter Deum et creaturam quam inter quamcumque aliam mensuram et mensuratum est unitas, seu unigenitas, non solum secundum rationem analogiae, sed unionis».

¹³ *Ivi*, f. 91v: «Aeternitas proprie non habet rationem mensurae Dei. Probatur, quia mensura habet rationem perfectionis et independentis».

¹⁴ *Ibidem*: «Nulla entitas permanens potest mensurari aliqua mensura successiva formaliter. Hoc probatur, quia mensura durativa non debet habere motum oppositum suo mensurato. Sed mensura successiva habet motum oppositum suo mensurato, scilicet enti permanenti, quia suc-

where when the author argues against the idea that time is established by proportion of existing being to eternity.¹⁵

The preliminary discussions have shown that for the author of the *Physics* questions time, just like *aevum* and instant (but not eternity), is a measure, possessing its unique character, essentially identical with the object it measures and irreducible to any other measure. Now it is time to see what is its essence, so that we are able to analyse its properties.

The nature of time is the issue that occupies, by far, most space in the four questions. The author begins with an appropriate, if poignant, quote from St. Augustine's *Confessions*: «Lord, up till now I do not know what the time is!» The following discussion gives an interesting review of two contemporary Franciscan opinions. He begins with that of Peter Auriol, his main opponent in many other questions. Peter claims that time is a pure succession concerning motion or any other *numerabilium* without any succeeding object, explaining that since time is formally nothing but *prius et post*, which are formally a succession, it is, consequently, a succession.¹⁶ After the opinion of Auriol, fortified by the authority of Augustine and Aristotle, our author presents the solution given by Landulf of Caracciolo, who stated that time, as a measure of motion, is successive, continuous quantity, which is different from that in which *prius et post* are received.¹⁷

cessivum et permanens sunt opposita, cum dicant aliquid commune, igitur (etc). Maior patet, quia mensura et mensuratum debent proportionari. Item omnis entitas eadem essentialiter cum aliqua entitate permanente est necessario permanens. Patet, sed mensura durativa et duratio est idem essentialiter cum quolibet durante, igitur etc. [...] Sed per durationem res est huiusmodi, quia quantum res durat, tantum est ens, igitur [...] tempus non est mensura per se et formaliter alicuius permanentis [...] Aevum est mensura cuiuslibet permanentis, ut permanens est. Probatur: nam aevum, ut dictum est, est mensura cuiuslibet creati et permanentis. Confirmatur, quia non mensuratur aeternitate. Patet, quia non est ab aeterno et etiam quia aeternitas proprie debetur Deo, nec etiam tempore, quia tempus est solum mensura successivorum, nec instanti, quia solum tali (est) mensura durativa per instans. Igitur sequitur quod omnia talia permanentia, ut permanentia sunt et ut abstrahunt a quiete et motu, aeo mensurantur, tam immaterialia quam materialia, ut angeli. Sed est dubitatio qua mensura mensurantur operationes angeli. Respondeo: Thomas dicit quod mensurantur tempore discreto, ponit enim et dicit quod tempus discretum est quoddam ens de genere quantitatis, constans ex unitatibus sibi invicem succendentibus, ita quod Aristoteles non facit mentionem de isto tempore, quia posuit substantiam angeli non distingui a sua operatione et ideo credebat quod eadem mensura mensurarentur substantia et eius operatio».

¹⁵ *Ivi*, f. 92v: «Formalis ratio temporis non est simultas sive proportio omnium existentium ad aeternitatem».

¹⁶ *Ivi*, f. 80r: «Est opinio Aureoli, qui ponit quod tempus nihil aliud est quam successio motus sine motu omnium succendentium. Unde est mora, id est successio motus et omnium numerabilium. Hoc probat. Tempus non est formaliter nisi prius et posterius, terminis actione addita. Sed prioritas et posterioritas non sunt formaliter aliud quam quaedam successio habens formaliter partes priores et posteriores, igitur etc.

¹⁷ *Ibidem*: «Aliter describit tempus frater Landulphus: tempus est quantitas continua suc-

It is the latter solution that the author of the commentary takes over, elaborating on it. He notes that time is composed of a material and formal part; the former part encompasses what is common to all, i.e. quantity or continuity, the latter is what makes it different from all other things, i.e. possessing successive parts conjoined by the instant: the past and future.¹⁸ The concept of ‘continuous quantity’ forming the material part of time receives a thorough inspection in a special question within a question. In its *rationes principales*, our author raises an objection to the claim that time is continuous, pointing out that if time is accepted as a quantity, it must be divisible and numerable.

In reply to the objections, our author presents an opinion of Peter Auriol, who distinguishes two modes of understanding time resulting from two modes of understanding quantity. According to the first mode, in which quantity is seen as non-discrete and indeterminate, time is a continuous and non-discrete quantity – i.e. a pure succession – like a line or a surface. According to the other mode, in which quantity is seen as discrete, determinate and measured, time is composed of the continuous and the discrete – i.e. a number – like a line of certain length or a surface of a certain extent and, in the case of time, a period of a day or a year. Thus he comes to a conclusion that the first *ratio* of measure belongs to discrete quantity and is only transferred to the continuous and so something can be measured only when it is analysed as concrete and possessing its proper number. The conclusion holds for both space and time. As a result, Auriol accepts that time taken as succession is a continuous priority and posteriority joined by a common terminus, i.e. the future and the past conjoined by the present. Secondly, he accepts that everything that includes continuity and number must be composed of the continuous and the discrete, because otherwise it would be impossible to estimate the measure. Hence, the distinction between the material (continuous) and formal (discrete) aspect of time posed already by Averroes and St. Albert.¹⁹

cessiva, mora motus distincta ab eo in quo signatur prius et posterius, ad mensurandum motus».

¹⁸ *Ivi*, f. 80r.: «In tempore est aliquid materiale et aliquid formale. Est enim species generis et in qualibet specie est ista reperiri. Materiale igitur in tempore est illud, in quo cum aliis convenit, et hoc est quantitas sive continuitas. Formale vero est illud per quod differt ab aliis et hoc est habere partes successivas ad instans copulatas; hoc enim sibi soli covenit et nulli alii. Ex hiis igitur duobus possumus sic describere tempus ipsum. Tempus est quantitas continua successivas habens partes, quae sunt praeteritum et futurum ad instans copulatas».

¹⁹ *Ivi*, f. 81r-v: «Utrum tempus sit quantitas continua. Quod non sit quantitas continua probatur [...] Dicit Aristoteles quod tempus est quantitas per accidens, quia et per accidens divisi-

Although the author of our commentary agrees with Auriol in general that time is, indeed, a continuous quantity, he rejects his particular conclusion concerning the composite character of time. He raises two objections against it. Firstly, since a species cannot be characterised by opposing differences, it is impossible for time to be characterised by continuity and discretion, which are opposite. Secondly, what is only an array of parts joined in a quantitative way, is not intrinsically discrete, therefore time cannot be said to be discrete.

The reply to these objections reiterates that the opinion that time includes intrinsically both quantity and discretion is false; it is appropriate to say, however, that time intrinsically includes continuity and actually – discretion, which comes from the soul separately perceiving one part of time after another.²⁰ The author's *opinio propria* develops the proposition:

bile; divisibilitas enim est passio quantitatis. Item, [...] non sit [...] continua [...], quia est numerus [...] Numerus autem est quantitas discreta. Respondeo: [...] Aureolus [...] ponit duas propositiones. Prima est ista, quod tempus acceptum per modum quantitatis discretae indeterminatae est quantitas continua et non discreta. Secunda propositio est ista, quod tempus acceptum per modum quantitatis discretae, determinatae et mensuratae est quantitas composita ex continua et discreta. Ad cuius evidentiam praemittit quod duplex est quantitas: quaedam indeterminata, ut quantitas non reducta ad certum numerum et mensuram, ut dico lineam et superficiem. Est aliqua quantitas determinata, ut quantitas reducta ad certum numerum et mensuram, ut dico bicubitum et tricubitum, vel lineam trium palmorum vel quattuor, etc. de aliis. Iuxta quod [...] prima ratio mensurae invenitur in quantitate discreta et transfertur ad continuam et hinc est quod numquam quantitas potest aliquid mensurare nisi ut reducta ad certum numerum et mensuram. Sicut linea absolute non dicitur mensurare, sed linea duorum palmorum vel trium etc., quae est reducta ad certum numerum, dicitur mensurare. Similiter dicit de tempore, quod vide licet potest sumi duplicer. Uno modo, ut est quantitas indeterminata, alio modo, ut est quantitas determinata. Primo modo est absolute ipsa successio adhuc non reducta ad certum numerum vel mensuram. Secundo modo est quantitas reducta ad certum numerum vel mensuram. Isto modo tempus est prius et posterius, ut numeratio in motu, vel est ipsa successio sic numerata, et ut tempus dicitur, sic quantitas numerata dicitur annus vel mensis vel dies. Hoc praemitto probantur praedictae duae propositiones. Et prima probatur sic: tempus, ut est quantitas indeterminata, non est aliud quam successio; sed successio est quantitas continua. Ipsa enim successio est quae dam prioritas et posterioritas continua ad aliquem terminum communem. Est enim futuritio et praeteritio continua ad praesens. Confirmatur, quia sicut linea absolute est quantitas indeterminata non discreta, cum non includit numerum, sic dico de tempore. Secunda propositio probatur sic. Omne includens continuatatem et numerum est quantitas composita ex continua et discreta. Sed tempus, ut est quantitas determinata, est huiusmodi, igitur (etc.). Minor probatur: quod includit ipsum tempus patet, quia eius partes copulantur ad indivisibile. Quod etiam includat numerum et discretionem probatur, quia impossibile (est) quantitatem certificari nec declarari nisi educatur ad certum numerum. Nam impossibile est de linea certificari quanta sit nisi ut sit reducta, ut dicam, ad lineam duorum palmorum. Similiter impossibile est concipere numerum quod est quantitas determinata nisi reducendo ad certum numerum et mensuram, et sic de aliis. Et haec est intentio plana commentorum Alberti, quarto *Physicorum* 34 commento, qui ponit tempus componi ex continuitate tamquam ex materiali et ex discretione tamquam ex formalibus.

²⁰ *Ivi*, f. 81v: «Contra istam opinionem arguitur. Impossibile est alicui speciei alicuius generis inesse duas differentias oppositas illius generis distinctas. Sed continuitas et discretio sunt dif-

«Time is a continuous quantity», saying that both characteristics, i.e. quantity and continuity, apply to it of itself. On one hand, it is a quantity of itself, because it has ‘parts beyond parts’, namely the past and the future, by its nature; it has an extension, which is a proper attribute of quantity; finally, it is a measure, which is a *ratio* of quantity. On the other hand, it is continuous of itself, because its parts are conjoined to a common terminus intrinsically. He concedes that even though time is quantitative formally and of itself, it may be treated as quantity *per accidens* causally, i.e. as a result, because its quantity is contracted by something else, just like music is an accidental being causally, as a result of something else, yet it is formally a being in itself.²¹ It is worth noting that speaking of time as a continuous quantity, the author remembers to remind the reader that continuity is different in permanent and successive beings: though in both cases it requires that the parts are intrinsically conjoined to something indivisible, in permanent beings all parts must exist at the same time (like parts of the line), whereas in successive ones this condition is unnecessary.²²

ferentiae quantitatem dividentes, ut patet in *Praedicamentis*, igitur (etc.). Item, nulla entitas, quae habet esse praecise per quantitatem et copulationem unius partis cum aliqua, est intrinsece discreta. Sed tempus habet esse huiusmodi, igitur (etc.). Maior patet, quia si aliquod oppositum est causa esse alium, ita quod per illud esse praecise habet aliud oppositum, sibi repugnat et est causa sui non esse [...] Confirmatur: nullum essentialiter discretum est essentialiter non discretum. Sed omne essentialiter continuum est essentialiter non discretum, quia omne continuum dicit impraecisionem et indvisionem, cum continuitas sit quaedam unitas. [...] Si igitur ista opinio intelligat quod tempori intrinsece inest quantitas et discretio, credo quod est falsa. [...] Si autem intelligeret quod continuitas sibi sit intrinseca et discretio actualis, in qua videlicet anima intelligit unam partem, ut est praecisa ab alia, sic bene concedo».

²¹ *Ivi*, f. 81v-82r: «Tempus est per se quantitas. Probatur sic: omne quod per se ex natura sua habet partem extra partem est per se quantitas; tempus est huiusmodi, igitur (etc.). Minor patet, quia praeteritum et futurum sunt partes temporis per se, quia nulli alii convenient [...] Propter quod illud quod habet extensionem propriam, habet propriam quantitatem, cum extensio sit passio quantitatis. Sed tempus habet propriam extensionem, aliam ab extensione spatii simpliciter [...] Item, cui convenient passiones quantitatis proprie et per se et proprissima ratio quantitatis, idem tale per se est quantitas; tempus est huiusmodi, igitur (etc.). Patet minor per longum et breve, quia per se competit tempori. Similiter ratio mensurae quantitativa, quae est ratio propria quantitatis, igitur (etc.). Secunda propositio est ista quod tempus est per se quantitas continua. Probatur: cuiuscumque partes intrinsece copulantur ad aliquem terminum communem, est per se (quantitas) continua; tempus habet esse huiusmodi, igitur (etc.) [...] Ad aliud dico quod tempus est quantum per accidens causaliter quia suam quantitatem contrahit ab alio; formaliter autem est per se quantum. Musica etiam est ens per accidens causaliter, quia est ab alio; formaliter autem est ens per se. Ad aliud dico quod numerus motus est vere mensura».

²² *Ivi*, f. 80v: «Natura cuiuslibet continui sive permanentis sive successivi in hoc stat, quod eius partes ad aliquod indivisibile intrinsece copulantur propter quod habent unitatem et continuatatem, quo facto in actu praeciso ipsam ultimam non habent continuatatem. Hoc patet: duae enim partes lineae copulantur ad punctum quo praeciso vel facto in actu iam essent (puncta) discontinua [...] Permanentia inquantum ad eorum actualem existentiam requirunt omnes partes actualiter existentes, ut simul sunt; non sic successiva, sed sufficit quod eorum partes sint ad ali-

The description of time as continuous quantity is repeated several times in all four questions and its analyses are summed up in the final one. The author presents there a number of propositions, which he calls *communia*. They can be divided into three parts. The first deals with the proper attributes of time: it is stated there that successive continuity of time is intrinsic and essential to it and that it is not identical with the continuity of motion or magnitude. The second group includes statements concerning the structure of time and here we learn that it is composed of formal and material parts and, according to another division, it includes *prius et post*. The third group contains propositions concerning the function of time as a measure: it is said to be a natural measure, which, as such, exceeds all temporal things, measuring them in an explicative way.²³

All of the theses are duly argued for but only some of them merit a mention as adding something new to the explanations already given elsewhere. Our author maintains that continuity must be an essential property of time, since it cannot exist without it, which would not be the case, if continuity were merely accidental to it. Continuity of time cannot be identical with those of motion and magnitude, because those that are continued in either of them are different from one another, being 'now' (*nunc*), *mutatum esse*, and point, respectively. This continuity is essentially successive, because it refers to successive rather than permanent quantity. As for the formal part of time, our author confesses that it is unknown to us but can be circumscribed by saying that time's *formalis ratio* consists in having successive parts conjoined with the present. The material part of time is, naturally, the quantity. *Prius et post* must be intrinsic parts of time, because it is essentially ordered according to them. Finally, since time as a measure exceeds all temporal things, it is obvious that it can measure them only in an explicative way. If, however, it is only one part of time that is going to serve as a measure, it can be exceeded by the measured object and, consequently, measure it in a replicative way.²⁴

quod indivisibile copulatae et ex connexione ad illud habent eorum partes existentiam, non enim requirunt simul eorum partes existere».

²³ *Ivi*, f. 92r: «Sunt accipienda communia quae sunt decem. Primum est: tempus est quantitas quaedam. Secundum est quod est continua quantitas. Tertium est: continuitas est sibi intrinseca et essentialis. Quartum (est) quod continuitas eius non est continuitas motus nec magnitudinis. Quintum (est) quod tempus est quid continuum continuitate successiva. Sextum (est) quod tempus includit aliquid formale et aliquid materiale. Septimum (est) quod tempus includit prius et post. Octavum (est) quod tempus est mensura ex natura rei. Nonum (est) quod tempus excedit quocumque temporale. Decimum (est) quod tempus acceptum secundum suam rationem mensurat solum modo explicativo modo».

²⁴ *Ivi*, f. 92r-v: «Quod ipsa continuitas non sit accidentalis temporis, patet per hoc quod per

Once we have established what is understood by ‘time’ in the *Quaestiones super libros Physicorum* we can proceed to the particular problems concerning time raised by its author. These include three large issues: the relation between time and instant, time and motion and, finally, time and soul. As it can be seen from the very titles of the questions, the author himself gives prominence to those problems and though certain solutions and arguments are repeated elsewhere, they are mostly addressed in those specially dedicated questions.

The problem of instant lies at the heart of understanding time. It has been said that our author accepts the Aristotelian concept of time, defined as past and future parts conjoined by the indivisible, which is an instant. What must be seen then is the nature of instant itself. The author of the commentary approaches the question in a familiar way, by allowing his opponent to speak first. The position of the opponent is occupied, once again, by Peter Auriol.

The starting point of the discussion is the opinion of Aristotle, which – as attested by our author – is accepted by every one. According to it, instant, or ‘now’ remains substantially the same within all time but is different with respect to ever changing existence (*esse*) and with respect to *ratio*. Auriol then presents three propositions. Firstly, the flow of ‘now’ is the cause of time, remaining substantially the same but existentially different throughout the flow. Secondly, ‘now’ follows that which it is carried by, i.e. motion. Thirdly, ‘now’ is what discontinues time and is its terminus when in act but continues it when in potency, just like a point, which con-

quacumque potentiam ipsum tempus non videtur posse existere sine ipsa [...] Continuitates quarum continuativa sunt alterius et alterius rationis sunt alterius rationis. Sed continuitates motus, magnitudinis et temporis sunt huiusmodi, igitur (etc.). Maior patet, sed minor probatur, quia continuitas tantum magnitudinis est punctus, motus mutatum esse, temporis autem nunc [...] Quod etiam (temporis) successio sit sibi intrinseca et essentialis patet, quia sicut se habet permanentia ad quantitatem permanentem, sic successio ad quantitatem successivam [...] Forma seu ratio formalis ipsius est nobis ignota, possumus tamen ipsam circumloqui, [...] ita quod dicamus quod formalis ratio temporis est habere partes successivas ad instans seu ad nunc copulatas. Hoc autem potest ostendi. Illud videtur esse formalis ratio et propria alicuius quod intrinsece sibi soli convenit. Hoc autem est habere huiusmodi partes successivas sic ad nunc copulatas respectu temporis, igitur hoc est sibi formale et per hoc ab omnibus distinguitur. Materiale autem in eo est istud in quo cum aliis convenit, ut quantitas [...] Illud, cuius partes intrinsece essentialiter ordinantur secundum prius et post, includit prius et post. Sed temporis partes sunt huiusmodi, quod scilicet isto modo ordinantur, igitur (etc.) [...] Tempus acceptum secundum rationem suam mensurat solum modo explicativo. Patet, quia mensura, quae semper excedit suum mensuratum, non mensurat ipsum nisi modo explicativo. Huiusmodi est tempus secundum rationem suam respectu rei temporalis, igitur (etc.). Dico tamen quod tempus acceptum secundum rationem suam, quia si accipiatur secundum aliquam sui partem, tamen bene potest excedi a mensurato vel sibi adaequare, et ita est mensurare ipsum modo explicativo».

tinues a line when in potency but terminates it in act. The conclusion drawn by Auriol is that time does not exist beyond the soul.²⁵

The author of the *Physics* questions rejects Auriol's conclusion (we shall discuss his reasons for it below) and, consequently, refutes the propositions it is derived from. He says that 'now', as an indivisible, cannot move, let alone flow, because flow presupposes succession that involves divisibles rather than indivisibles. It cannot be a cause of time, since it is neither formal nor material, final or effective one, and there are no other types of causes. What is more, if it were the cause of time, it would mean that indivisible instant would be adequate to divisible time, which is impossible.²⁶

The solution, which follows, is composed of two parts. In the first one the author argues for the opinion that instant does not remain substantially the same in all time; the other part is a defence against the opinion concluding that if an instant does not remain the same, it must perish. The arguments for the proposition are of triple character. The first one is drawn from Aristotle's statements that there is time between any two instants but no indivisible can be split by something divisible, e.g. time. Consequently, it is impossible for the instants separated by time to be substantially identical. The second shows that if one takes two parts of time, i.e. the past and the future, and an instant that continues through them, it can be seen that the instant must pass away together with the part of time it is in, otherwise

²⁵ *Ivi*, f. 83v: «Primum dictum Aristotelis est istud quod attribuit nunc, quod proprium est nunc quod sit idem in toto tempore secundum substantiam et subiectum differens penes aliud et aliud esse et secundum rationem [...] Nunc fluens causat tempus et est idem in toto fluxu secundum substantiam, differens secundum esse [...] Nunc sequitur illud quod fertur. Sed tempus sequitur ipsum motum et sicut mobile est idem in toto motu secundum substantiam, non secundum esse, sic et nunc vel instans [...] Nunc, ut discontinuat tempus, est in actu et est terminus ipsis, sicut punctus factus in actu discontinuat ipsum (lineam) et est terminus; et sicut punctus in potentia continuat ipsam (lineam), sic nunc in potentia continuat ipsum tempus. Hoc praemissio declarat positionem suam. Ad evidentiam est sciendum quod tempus non habet esse praeter animam; hoc enim dato, ut dicit, inconvenientia quae adducuntur contra istam conclusionem, quae est Aristotelis, concludent».

²⁶ *Ivi*, f. 84r: «Contra etiam quod dicit instans fluere arguitur, quia indivisible non potest fluere, nec etiam moveri, sexto huius. Item, si instans esset causa temporis, quaero in quo genere esse. Non esse materiale, quia tunc esset subiectum tempus temporis; indivisible autem non est subiectum divisibilitatis. Non formale, certum est, quia instans non est forma temporis, sicut nec forma puncti est linea. Nec finale (quod) patet, nec efficiens, quia idem est subiectum passionis et efficiens [...] Instans non potest esse subiectum fluxus, [...] quia fluxus dicit successionem et divisibilitatem; nullum autem indivisible est subiectum divisibilis [...] Item, si instans per suum fluxum causaret tempus, tunc sequeretur quod adaequaretur toti temporis; aliter aliqua pars esset temporis, quae non esset causata per fluxum, etc. Sed indivisible non potest adaequare indivisibili».

one would have to admit that the substance of an instant can pass from one subject to another, which is impossible. The third one is based on parallel between an instant, *mutatum esse* and a point in a line. Aristotle shows that neither *mutatum esse* nor a point remain substantially one, as is clear from an example with a point on a section of a line, which must perish lest it were divided into two. Moreover, if the instant or 'now' remained the same throughout the time, it would mean that many successive *mutata esse* take place at the same time, which is impossible, especially that every *mutatum esse* in motion corresponds to its instant in time.²⁷

The arguments raised against our author's proposition that instant cannot remain substantially identical in all time point to a very important problem. If an instant perishes, it must perish at some point. It cannot perish in the same instant it exists, because then it would be and not be at the same time, which is impossible. It cannot perish in a preceding instant, because then it would perish before it came into being. It cannot perish in a following instant, no matter whether is immediate or mediate. The former option is impossible, because according to Aristotle instants are not immediate to one another; the latter is also impossible, for if we posit an intervening time between two instants (no matter how short), it contains infinite instants, and so a destruction of one instant would come after an infinite number of other instants.²⁸

²⁷ *Ivi*, f. 84r: «Ostendo quod non sit idem instans secundum substantiam in toto tempore. Primo sic: impossibile est quod inter aliquam entitatem secundum substantiam simpliciter indivisibilem mediet aliqua entitas divisibilis. Sed inter quaecumque duo instantia in tempore, secundum doctrinam Aristotelis in sexto (huius), cadit tempus, igitur impossibile est quod substantia huius instantis et illius sit una impartibiliter [...] Confirmatur: accipio duo instantia inter quae clauditur aliqua pars temporis, tunc vel substantia istius instantis est substantia illius vel non, vel alia. Si alia, habetur propositum [...] Item, accipio duas partes temporis, puta praeteritum et futurum, et accipio instans quod continuat istas duas partes. Nunc quaero aut substantia huius instantis transeunte ista parte et adveniente alia, puta quando pars futura transit in praeteritum, quaero an tale instans secundum substantiam eius corruptitur vel remanet. Si dicatur quod substantia eius transit et deficit sicut pars et pars quam copulat, habeo propositum. Si dicatur quod substantia eius non desinit, igitur sequitur quod transeat de subiecto ad subiectum et de maiori parte temporis ad aliam partem. Sed hoc est manifeste impossibile, igitur etc. Item, sicut se habet mutatum esse ad motum et punctus ad lineam, ita se habet instans ad tempus. Ista est propositio Aristotelis. Sed mutatum esse in motu et punctus in linea non sunt secundum substantiam unum, igitur nec per consequens instantia in tempore. Minor patet: de punctis enim in linea satis est clarum. Nam uno puncto corrupto alia possunt remanere. Quando enim duae partes lineae fiunt in actu, iste punctus qui recopulabat corruptus est, alter esset in duo divisus, et sunt duo de novo producti [...] Item, sequitur quod plura essent simul. Probatio: nam cuilibet mutato esse in motu correspondet suum nunc in tempore. Per te autem manet idem nunc in toto tempore secundum substantiam, igitur et omnia mutata esse in motu sunt in eodem nunc, ex quo sequitur quod plura nunc correspondentia pluribus mutatis esse erunt simul. Hoc est impossibile, igitur (etc.)».

²⁸ *Ivi*, f. 84r-v: «Sed contra istam (opinionem) arguitur per rationem Aristotelis. Si instans

The author of the questions treats these objections seriously and is swift to admit that neither instant nor *mutatum esse* perishes. He remarks that some authors (*aliqui*) claim that an instant does not come to being or perish in the proper sense but instead it begins and ends (*incipit et desinit*). The solution he himself favours is still different. According to our author, to say that instant or *mutatum esse* does not perish in time is tantamount to saying that time is not a measure of their destruction and this, as such, is true. He prefers, however, to use the term 'pass' (*cedere*). Instant and *mutatum esse* pass when time passes at something indivisible. A present instant passes by becoming past but something does not become past only because an indivisible passed into something else. An instant passes only at the end of a process that involves something divisible. The fact that there is a process does not mean that we can speak of an instant passing part by part, because it is indivisible, but that it always accompanies the end of a period. Accordingly, it is impossible to speak of the first instant of passing.²⁹

Throughout the discussion concerning the destruction of instant, our author maintained its indivisibility. Indeed, in his characteristic of it he

non manet unum secundum substantiam, tunc corrumperetur. Consequens est falsum, igitur et antecedens. Falsitas consequentis probatur, quia vel corrumperetur in se ipso, et hoc non, quia tunc simul esset et non esset; vel in aliquo instanti, et hoc modo non, quia vel corrumperetur in praecedente vel in sequente. Non in praecedente, quia corrumperetur antequam esset; nec in sequente, quia vel in mediato vel in immediato. Non in mediato, quia sic non est immediatum in instanti, nec in immediato, quia inter talia instantia cadit tempus medium, et cum in quocumque tempore sunt infinita instantia, igitur per consequens illud instans non posset corrupti, quoniam corrumperent infinita instantia, quod est falsum, igitur etc. Item, aut corruptitur quando est, aut quando non est. Non quando non est, quia tunc simul haberet esse et non esse, et quando est incipit esse, ergo quando habet esse incipit esse, quia illud quod nunquam fuit nec in toto tempore praeterito fuit incipit esse. Sed sic non fuit, igitur per consequens incipit esse; ergo quando habet esse incipit esse. Sed quod incipit esse non desinit esse, cum sint opposita, igitur quando est, non desinit esse (seu corruptitur), nec quando non est, quia quando est, corruptum est, igitur <etc.>.

²⁹ *Ivi*, f. 84v: «Ad primum dicunt aliqui quod instans proprie non corruptitur nec generatur, quia omnis generatio vel corruptio mensuratur aliqua mensura. Verumtamen potest bene designare vel incipere. In plus enim se habet incepio quam generatio [...] Et ideo dico aliter, quod instans vel mutatum esse non corruptitur in tempore, non sic intelligendo quod sit tempus mensura corruptionis eorum, sed quia cedunt ad cessationem temporis et alicuius indivisibilis. Indivisible enim non cadit nisi per cessionem alicuius divisibilis. Unde instans nunc praesens non cedit nisi per hoc, quod sit praeteritum. Non autem sit praeteritum per solam cessionem indivisibilis [...] Ista igitur propositio est necessario concedenda, quia omne indivisible cedat divisibili, non sic quod una eius pars primo cedat primo et postea alia, cum sit indivisible, sed quia non cedit nisi ad cessionem alicuius divisibilis [...] Non sequitur igitur cessum esse est divisibile, quia si ad cessionem alicuius divisibilis, igitur quia quando cessum est, non est. Sed bene concedo quod cessum est est divisibile, nec contingit dare primum instans, nec primam partem temporis in quo cessum sit. Sicut non contingit dare primum instans, nec primam partem motus, nec primum instans post terminum a quo, ut probatur sexto huius».

states that it is repugnant to divisibility into *signa realia* and thus it is impossible to assign priority or posteriority to it. On the other hand, he concedes that what is impossible really, is possible *secundum rationem*. What is more, in the same instant of time one can assign not only many *signa rationis* but also *signa naturalia*, introducing order of priority. Our author assures his readers, however, that it does not bring about any contradiction.³⁰ The analysis of properties of instant is closed with an answer to the most important question concerning its ontological status. The author of the commentary rejects here the twofold division into substance and accident, saying that instant is a certain reality, which is neither of the two.³¹

Having established the characteristic of instant our author proceeds into the discussion of its relation to time. Instant is said to be actually in time. Its actuality is called ‘present’ (*actualitas praesentis*) to stress that only the present instant exists actually, all other ones being either past or future.³² The fact that instant, understood as the present, actually exists in time does mean, however, that it is its part. On the contrary, the author of the questions argues that it cannot be a part of time, for all parts of time are divisible, since time is divisible in proportion to the division of space.³³

³⁰ *Ivi*, f. 84v-85r: «Impossibile est in eodem instanti assignare realiter alteritatem prioritatis et posterioritatis. Probatur: in simplici indivisibili non potest assignari alteritas prioritatis et posterioritatis. Sed instans est simpliciter indivisibile, igitur etc. Maior patet, quia ubi est prius et post, ibi plura, et per consequens divisibilitas [...] In instanti potest assignari alteritas prioritatis et posterioritatis secundum rationem. Hoc probatur, quia illud instans est principium unius partis temporis et finis alterius. Sed principium et finis dicunt alteritatem prioritatis et posterioritatis, igitur (etc.) [...] Instans non est divisibile in plura signa realia. Probatur: nam tunc instans esset divisibile et quodlibet istorum signorum esset instans et sic unum instans esset plura instantia, quorum utrum est falsum [...] In eodem instanti possunt assignari plura signa rationis. Probatur, quia idem instans est principium et finis, tum quia in eodem instanti temporis sunt plura signa naturae et cum simulante instantis temporis stat prioritas secundum naturam, quod patet, quia propria passio est in eodem instanti temporis cum suo subiecto, et tamen est post natura etc.

Sextum dictum est istud quod ista alteritas prioritatis et posterioritatis secundum rationem non ponitur contradictoria, de eodem posset verificari in eodem instanti temporis. Probatur: impossibile est quod in eadem mensura realiter indivisibili aliiquid sit et non sit. Sed instans est realiter indivisibile, igitur (etc.)».

³¹ *Ivi*, f. 85r: «Ista divisio non est immediata proprie loquendo de substantia et accidente; de multis enim oportet dicere quod nec substantia nec accidens potest essentialiter praedicari de ipsis, nec de multis differentiis et de multis aliis. Ista igitur divisio non est immediata sed bene ista: omne quod est vel est substantia vel accidens vel aliqua realitas huius vel illius».

³² *Ivi*, f. 85r-v: «Triplex est actualitas: quaedam separationis, ut illud indivisibile dicatur actu sic quod habeat esse separatum in tempore, et illo modo est impossibile; alia est actualitas actualis terminationis, ut illud indivisibile dicitur esse actu, quia actu terminat illud cuius est, ut puncta extrema in linea dicuntur esse actu ista actualitate. Instans autem continuans partem praeteritam cum futura est solum praesentis; alia vero transierunt, ut quae sunt in praeterito, vel sunt transeunda, ut quae sunt in futuro».

³³ *Ivi*, f. 85v: «Praesens nullo modo est pars temporis. Probatur: omnis pars temporis habet

And when it is said that it is owing to the present, which conjoins the past and the future, there is time, the author replies that this is no wonder: a man is called crisp-haired because his head is covered with crisp hair, even though head is not the whole man.³⁴ It is clear then that the present, or 'now' is nothing but an indivisible, or instant, conjoining the past and the future.³⁵

The second large issue concerning time in relation to other things is focused on motion. It is interesting to observe how hard the author of the *Questiones* tries to maintain the precise distinction between time and motion, even though he acknowledges their mutual relations. It has already been said of time that we can call it present, although it is entirely composed of past and future parts. According to our author this is because the parts continually follow one another until a present state (*mutatum esse*) in such a way, that each part of time corresponds to a proportional part of motion.³⁶ The continuity of time, however, is different from that of motion, not because motion does not share the same characteristics, but because time and motion have different objects of continuation: in the former case, it is the instant, in the latter, the *mutatum esse*.³⁷

partes. Sed praesens non habet partes, igitur (etc.). Minor probatur: cuiuslibet successivi habentis partes una pars succedit alteri et una est ante aliam, et una facta antequam alia. Sed praesenti non potest assignari quod una pars succedit aliae, et quod una pars sit ante facta, igitur (etc.) [...] Sequitur igitur quod praesens non sit pars temporis, quod est ens successivum. Item, tempus dividitur ad divisionem spati, sexto huius. Sed in spatio semper una pars est prior, alia posterior, et post quamlibet partem est alia pars, et una est extra aliam, quia omne continuum habet partem extra partem, igitur in tempore omnis pars vel esset prior vel posterior. Sed hoc non potest assignari de praesenti, quia quod prius est factum non est praesimaliter factum, igitur sequitur quod praesens non est pars temporis».

³⁴ *Ivi*, f. 80v: «Licet in instanti non sit tempus, nec pars temporis per existentiam, tamen instans actuale tempus dicitur in actu. Unde non sequitur ad hoc, quod sit tempus nisi aliquid indivisibile continens partem priorem cum posteriori. Declaratur exemplo: licet enim caput hominis non sit homo, tamen totus homo denominatur crispus, ex hoc quod crispitudo informat caput. Ex quibus patet declaratio entitatis temporis».

³⁵ *Ivi*, f. 85v: «Ipsum praesens non est aliquid nisi ipsum indivisibile vel ipsum nunc vel ipsum instans continuans partem praeteritam cum futura. Probatur: quodcumque dicitur esse praesens, dicitur esse nunc, et econverso, igitur nunc et praesens idem sunt. Sed nunc est indivisibile copulans (partem) praeteritam cum futura, igitur et praesens».

³⁶ *Ivi*, f. 86r: «Sicut fuit dictum de tempore, quod quaelibet eius pars sit facta et fienda, ipsum tamen tempus dicitur esse praesens per actualem continuationem unius partis cum alta ad mutatum esse praesens, ita quod cuiilibet parti temporis correspondet proportionaliter pars motus, ita quod parti praeteritae correspondeat pars facta in motu et futurae fienda etc., requiritur quod sicut fuit actualis continuatio in tempore unius partis cum alia, ita etiam in motu fit actualis continuatio».

³⁷ *Ivi*, f. 80r: «Unde continuitas motus est alia a continuitate temporis. Probatur: continuitas, cuius continuatum est alterius rationis, ipsa est alterius rationis. Sed continuatum temporis et motus sunt alterius rationis, quia (sunt) instans et mutatum esse».

It is not only the continuity of time and motion that differ. In two separate places in the questions the author produces lists of propositions dealing with differences and similarities between the two. From the first one, we can learn that time that is in the motion of the *primum mobile* is really different from the inferior motions it is the measure of. On the other hand, if one compares all time and all motion of the *primum mobile*, time is not really different from the motion in which it is subjectively. The same is true for spatial time and motions. The author argues that since it is impossible for motion to exist without time, even by the power of God, they cannot be really different. To the objection saying that there is a real relation between time and motion (sc. that of measuring) and the extremes of a real relation must be really different our author replies that this relation involves time in general and particular motions, and those are, indeed, really different. Finally, time is formally different from motion, just like an attribute is different from its subject. It can be called an attribute of motion because it adds to it an aptitude allowing it to be measured in the same way as visibility allows man to smile. Materially, time and motion remain the same.³⁸

³⁸ *Ivi*, f. 82r: «Tempus quod est in motu primi mobilis subiective distinguitur realiter a motibus inferioribus quos mensurat. Haec (propositio) probatur sic: quaecumque sunt praecisibilia ad invicem, non sunt idem realiter. Sed tempus primum et motus inferiores sunt huiusmodi, igitur etc. Minor probatur, quia si nullus esset motus hic inferius adhuc posset coelum moveri, et per consequens tempus esset similiter cessante motu primi mobilis, et per consequens esset tempus, etsi nullus motus esset hic inferius, ut probatum est supra. Item, quaecumque duo accidentia sunt in distinctis subiectis, illa sunt distincta realiter. Tempus primi mobilis et motus inferiores sunt huiusmodi, igitur (etc.) [...] Comparando totum tempus ad totum motum primi mobilis, tempus primum non distinguitur realiter a motu in quo est subiective. Similiter tempus spatiale non distinguitur realiter a motu in quo est. Probatur: omne absolutum prius natura alio distinctum realiter ab illo potest per potentiam Dei separari ab illo. Ista patet infallibiliter. Deus enim potest separare quaecumque absoluta non dependentia, quare enim Deus non potest ista separare duo? Hoc est propter dependentiam ad invicem vel propter eorum identitatem realem. Sed impossibile est per aliquam potentiam motum esse sine tempore. Hoc patet, quia non potest esse motus quin sit prius et posterius et alia pars praeterita et alia futura. Haec autem sunt ipsum tempus, igitur (etc.). Praeterea, tempus est passio motus, passio autem non distinguitur a subiecto, ut suppono et probatum fuit in primo libro, igitur (etc.) [...] Contra [...] Quaecumque ad invicem referuntur relatione reali, illa talia non sunt idem realiter, quia relatio realis requirit duo extrema realiter, quia relativa sunt quorum esse ad aliud realiter refertur. Sed tempus et motus sunt huiusmodi. Patet, quia se habent sicut mensura et mensuratum. Confirmatur: idem ad se non refert ratione reali, quinto *Metaphysicae*. Item, cuiuscumque partes continuantur ad aliquem terminum essentialiter, habent essentialiter aliam et aliam continuitatem, et per consequens eius quantitas est essentialiter distincta. Sed mutatum esse, ad quod copulantur partes motus, et instans non sunt idem essentialiter, igitur (etc.). Respondeo. Ad primum dico quod nunc et mutatum esse omnino sunt idem essentialiter, distincta tamen ex natura rei [...] (Tempus) distinguitur formaliter a motu. Patet, quia passio distinguitur formaliter a subiecto, igitur (etc.). Unde tempus

The second list of propositions is but a sketch, yet it must be noted, because some of them seem to contradict the ones from the earlier list. It is said there that time is not really identical with the motion of *primum mobile*, or motion taken in general; furthermore, it is neither the continuation of motion nor its essential quantity. The latter two propositions go well in line with what has been said so far. Not so with the first couple. As for the first proposition, the author argues that though there cannot be many times, there can be many worlds and, consequently, many motions of the *primum mobile*. As for the second, he argues that if the two were really the same, then time could not exist without motion; moreover, the quantity of motion would have to be commensurate with the quantity of time, which is not the case, since there can be a greater motion in a smaller time and vice versa.³⁹

These apparent *aporiae* induce us to pose a question whether time can exist without motion. The questions provide us with an answer. Our author staunchly rejects the idea that time can precede motion, saying that it is contrary to both theological authority (impersonated by St. Augustine and Venerable Bede) and reason, since time, which is not a substance, must exist in motion as its subject. Consequently, there will be no time if all motion ceases. Moreover, time is what follows (*est sequela*) motion, because it is successive, and everything that is successive is funded on motion. Besides, as a measure of motion, it must be proportionate to it and uniform (*unigenum*) with it. The argument that time also measures rest is worthless, since rest is measured *per accidens* in proportion to motion.⁴⁰

addit aliquid supra motum, scilicet respectum aptibilem, sicut risibile addit respectum aptibilem supra hominem. Unde sicut homini accidit quod actu rideat, ita accidit motui quod actu numeratur; addit igitur tempus supra motum numerabilitatem. Tempus igitur et motus sunt idem materialiter, formaliter tamen distincta».

³⁹ *Ivi*, f. 92v-93r: «Tempus non est idem realiter quod motus primi mobilis; [...] tempus non est realiter quod motus generaliter; [...] tempus non est continuatio motus; [...] tempus non est quantitas essentialis motus [...] Primum sic probo. Quaelibet pars temporis est tempus. Sed non quaelibet pars circulationis est circulatio, igitur tempus non idem est quod ipsa prima circulatio. Praeterea, possibile est plures primas circulationes esse simul. Sed secundum Philosophum octavo *Physicorum*, capitulo decimo, non possunt esse plura tempora, igitur non est idem tempus cum ipsis. Antecedens patet, quia possibile est fieri plures mundos [...] Secundum, quod tempus non erit idem realiter quod motus generaliter sumptus: nam motus est solum modo in mobili realiter. Sed tempus non est solum modo in illo, sed etiam in quacumque re alia temporali, igitur ipsum non est idem quod motus. Si enim esset idem, non posset esse nisi ipse motus esset [...] Praeterea, si tempus et motus realiter essent idem, quantitate motus commensuraretur quantitas temporis. Consequens est falsum, igitur illud ex *(quo)* sequitur. Consequentia tenet. Sed falsitas consequentis probatur, quia maior motus potest fieri in minori tempore, et minor in maior».

⁴⁰ *Ivi*, f. 82v: «Contra primam conclusionem, quod tempus non sit ab aeterno, per Augu-

In this way, we arrive at a conclusion: time is twofold in character. On the one hand, it common and general, corresponding to the motion of the *primum mobile*; this time measures the motion of the *primum mobile* by inherence and all other motions, as an assisting measure. On the other hand, time can be particular or spatial, i.e. of limited duration; this time is inherent to particular motions. Thus, it can be said that there is only one time, which is an extrinsic measure of all temporal beings; this is time in the general sense, which cannot be multiplied but is first in the genus. What can be multiplied is the particular time, corresponding to particular motions, each of which must have its inherent time being its measure. Following St. Augustine our author notes here that such particular time can last even after cessation of the motion of the *primum mobile*. He adds that by the power of God, there could be separate motions with their separate times.⁴¹

stinum et Bedam et omnes Super Genesim, qui ad litteram ponunt fuisse productum ab initio mundi. Unde ponunt simul quatuor creata, scilicet naturam angelicam, coelum empireum, primam materiam et tempus. Praeterea, per te ab aeterno fuit tempus, igitur ab aeterno aliquod subiectum habuit. Sed Deus non fuit, quia non est subiectum accidentis, igitur ab aeterno fuit aliqua creatura, quae fuit subiectum temporis. Sed hoc est contra veritatem [...] et fidem, igitur (etc.). Nec videtur, salva sua reverentia, secundum veritatem omne dictum, quod tempus nihil habet pro subiecto, [...] sed est quoddam consequens ipsum motum vel sequela. Nam omne ens vel est ens per se, vel in alio. Tempus non est per se ens, cum non sit substantia, igitur est in alio [...] Ratio, quia tempus inest omni motui et soli et semper, ut patet (per) Philosophum. Quod etiam sequela sit motus, probatur. Omnis mensura successiva est consecutio entis formaliter successivi. Sed omne successivum est motus vel fundatur in motu, quod dico propter actionem et passionem, igitur (etc.). Maior patet, quia nullum successivum potest mensurare ens permanens. Ista (propositio) patet, quia mensura et mensuratum debent esse unigena et debent etiam proportionari, cuiusmodi non sunt permanens et successivum. Dico igitur, quod cessante omni motu non esset tempus positive nisi solum privative [...] Quo modo per accidens (aliquid) tempore mensuratur? Hoc igitur imaginor sic, quia eo quod tantus motus posset fieri in tanto tempore, ideo pro hoc quod aufertur motus per tantum tempus secundum mensuram motus, quae posset fieri in toto tempore indicamus totam quantitatem esse quietis et dicimus quietem durare per unum diem, quia igitur motum illum; sic etiam mensuratur per se ideo et quies, cuius quantitas indicatur ex motus quantitate, qui posset fieri in tanto tempore, dicitur mensurari tanto tempore, et hoc est per accidens».

⁴¹ *Ivi*, f. 81r: «*Duplex est tempus: quoddam commune et generale, cuiuscumque motus particularis per assistantiam mensurae et motus primi mobilis per inhaerentiam mensuratur, quia soli illi inhaerentia est quasi subiecto et nulli alteri, et istud est tempus correspondens primo motui primi mobilis.* Est aliud tempus spatiale, id est quasi particulare spatialiter et particulariter sumptum et istud sic responderet motui particulari, quia sibi existenter inhaeret. Praemiso hoc pono duas conclusiones. Prima est ista, quod omnium temporalium est unicum tempus, [...] omnium aliorum mensura motuum extrinseca. Hoc probatur. Omnimotum est aliquis motus primus et ipsorum regula, igitur et ipsorum omnium est unum tempus [...] De isto tempore dicit Aristoteles quod impossibile est ipsum plurificari, sicut nec mobilia prima, nec motus primi. In omni enim genere entium est dare unum primum ad quod omnia reducuntur. Secunda conclusio est haec, quod tempus particulare vel spatiale necessario est plurificabile, ita quod ad plurificationem motuum realium sequitur necessario plurificatio temporis [...] Item, impossibile est quod

These comments shed some light on the above *aporiae*. It seems they can be solved if we accept that ‘time’ is meant there to stand for particular time, which obviously is really different from the motion of the *primum mobile*, or motion taken in general, because it corresponds to a particular motion.

In this way, we have come to the final problem of the *Quaestiones*, the question whether time exists beyond the soul. The question is repeatedly addressed in several places within the *Quaestiones* but unlike the preceding one, it is always answered in a uniform way. As has been said above, our author rejects the opinion of Peter Auriol that time and *aevum* exist only in the soul. He adds that this proposition was one of the articles condemned by the bishop of Paris.⁴² His own solution is that time is a formal being that exists totally beyond the soul. He argues that it is unimaginable to claim that time is formally in the soul and materially beyond it presenting a number of arguments. In the first place, changes that occur in time take place without any operation of the intellect. Secondly, the termini of time, i.e. *prius et post*, are opposite and cannot exist at the same time in their formal subject, whereas in the intellect, sense, or medium they are not opposite. Thirdly, in time facts are always co-ordinated as occurring at the same time or one after another; in the soul there is no such constraint and facts can be analysed separately from one another. The final remark observes that time must exist beyond the soul for it is a subject of consideration of a physicist, who is not interested in mere products of the soul.⁴³ The external existence of time is characterised as an imperfect

aliquis sit motus sine temporis praesentia, quae sit eius mensura. Ista *opinio* patet cuilibet philosophanti, quia omnis motus tempore mensuratur. Sed cessante motu primi mobilis et per consequens primum tempus cessabit, [...] potest etiam esse aliquis motus hic inferius, igitur oportet quod sibi respondeat proprium tempus, quod sit eius mensura. Maior probatur per istam *Scripturam* [...] sic: In *Iosue* habetur planum quod cessante motu primo erat motus pugnantium. Idem, Augustinus quod cessante motu coeli moveri posset rota figuli. Ratione etiam sic: quia Deus posset absoluta distincta essentialiter quorum unum ab altero non dependet essentialiter facere unum sine alio, ista sunt huiusmodi, igitur *{etc.}*».

⁴² *Ivi*, f. 83v-84r: «Contra istam opinionem *(Aureoli)* arguitur. Dicit enim tria manifesta falsa, primo enim hoc quod dicit tempus esse ab anima. Hoc enim [...] est articulus excommunicatus parisinus per opinionem parisiensis *(episcopi)* et totam universitatem, qui determinaverunt esse erroneum *aevum* et tempus ponere in sola apprehensione animae, et ponitur sub centesimo nonagesimo nono».

⁴³ *Ivi*, f. 80r-v: «Tempus habet esse formale et appropriatum quantum ad eius entitatem totam extra animam. Unde non imaginor sicut quoddam quod sit formaliter ab anima et materialiter praeter animam, quia ex ente extra animam et in materia nulla est entitas. Pono igitur quod est extra animam omni actu intellectus circumscripto [...] Item, sine effectu animae potest esse transitus a contrario in contrarium et a contradictorio in contradictorium. Sed hoc non potest esse nisi in tempore, igitur *{etc.}* [...] Sed unum prius et aliud post, quae sunt etiam ipsum tem-

act, i.e. one mixed with potency. It is a mode of existence proper to successive beings, which only come into being.⁴⁴

It must be noted, however, that our author somewhat softens his stance by admitting that time can be understood in a twofold way. If we analyse it in its continuity, i.e. its extension in the continuous flow, it has nothing to do with the soul. On the other hand, if we analyse it with respect to duration of a precisely determined period in the past or in the future, regardless of their relation to the present, then this understanding of time must include the operation of the soul, because it is the source of discretion contained in such concept of time. Discretion, as opposite to continuity, which is an essential property of time, can only be externally introduced into time.⁴⁵

So much for the *Quaestiones supra libros Physicorum*. Now it is time to ask the fundamental question: can the doctrine of time presented there be

pus, supponunt etiam quando et quando autem est quod relinquitur ex adiacentia temporis ad rem temporalem, igitur (etc.). Item, in illo non esset tempus secundum esse formale proprium, in quo opposita temporis non habent oppositum et repugnantiam. Sed opposita temporis non habent oppositum et repugnantiam in esse apprehenso, igitur (etc.). Maior probatur, quia quaecumque opponuntur, habent oppositum in illo, in quo habent suum esse formale, verbi gratia album et nigrum sunt opposita et habent esse in sensu et in intellectu obiective, et in medio et in causa, et in subiecto, et nullam oppositionem habent in intellectu, quia simul possunt intelligere, nec in visu, quia simul possunt videri, nec in causa, quia simul ibi possunt esse, nec in medio per eandem rationem. Sed tamen habent oppositionem in subiecto ubi est formale eorum. Maior probo, quia oppositum temporis secundum Augustinum et Philosophum, quarto *Physicorum*, sunt prius et post; ista autem impressione animae sunt simul natura, id est naturali intelligentia, ut habetur in permanentis, igitur (etc.). Secundo sic: in illo non est tempus formaliter a quo vel in quo anima temporaliter non habet simultatem, prioritatem et posterioritatem. Sed hoc non habet in esse apprehenso, igitur (etc.). Haec minor probatur, quia (inter) illa quae fuerint simul facta, unum potest intelligere sine alio vel prius alio vel post aliud. Illa etiam quorum unum fuit prius alio possunt simul intelligere vel posterius factum potest intelligere prius, igitur (etc.). Item, nullum factum ab anima est ens reale. Sed illud quod non est ens reale non est de consideratione physici, igitur a primo ad ultimum tempus non est de consideratione physici, quod est falsum».

⁴⁴ *Ivi*, f. 93r: «Tempus et alia omnia successiva [...] habent tamen esse tertio modo, scilicet in actu permixto potentiae, hoc est imperfecto, quia tantum in fieri. Et ideo partes temporis sunt eo modo, quo eis potest competere esse».

⁴⁵ *Ivi*, f. 80v: «Tempus potest sumi duplickey uno modo quantum ad eius continuitatem, sive pro illa extensione in fluxu continuo etc. – circa hanc continuitatem nihil facit anima; alio modo potest considerari quantum ad eius discretionem praescindendo et distinguendo illud, quod praeterit, quod iam acquisitum et pertransitum, ab illo quod futurum est, nec in sui futuritione est, et unum quodque istorum considerando inter terminos proprios praeteriti vel futuri, et futuri ut futuri, non considerando annexionem eorum in praesentib[us] indivisibili etc. habent naturam discretorum; et illo modo anima se habet ad ista. Sed non solum ut contracta sunt ab ea, sed quasi in tali esse cognoscibili et praeciso et discreto posita. Talem enim discretionem et praecisionem non habent nisi ab anima. Hoc probatur, quia cuicunque ex natura rei inest continuitas, eidem ex natura rei non inest discretio. Patet, quia sunt oppositae differentiae quantitatis. Sed temporis ex natura rei inest continuitas, igitur impossibile est quod simul ex natura rei insit discretio».

labelled as Scotism? This may be established by comparison. Fortunately, there are several points of reference, both in Scotus' *Quaestiones super Metaphysicam* and in the works of his disciples. In the latter case, I shall look into the works of Antonius Andreeae, to whom the text was attributed, and Landulf of Caracciolo, whose opinions were quoted with approval several times in the questions.

Scotus devotes only one question to the problem of time in relation to motion; in question 10 from book V he discusses whether time is the quantity that makes motion a quantity (*Utrum quantitas qua motus est quantus sit tempus*). Yet, even in this relatively short question we can find a number of traits, which could serve as sources for our author. According to Duns Scotus time is a measure of motion, and as a measure it must be really different from motion. The quantities of time, motion, and magnitude are distinct from one another, and consequently, what their respective parts are conjoined to is also distinct for each of the quantities: instant for time and *mutatum esse* for motion (he does not mention point for magnitude).⁴⁶ *Aevum* and time belong to the same genus of beings, i.e. to the category of quantity, yet are in different genera of measures, for they measure different things.⁴⁷ It is interesting to note that our author had left out most of Scotus' discussion of *aevum* with respect to instant or 'now' and time and made no mention of it in his questions. Apparently, he must have been more sensitive to the fact that *aevum* does not fit the subject of the *Physics* questions.

Antonius Andreeae had addressed the problem of time more thoroughly than Duns Scotus. Regrettably, his questions to the *Physics* are lost and the only proposition from it that we know is the self-quotation in *De tribus principiis*. Antonius says there that time is really identical with motion though it is different from it formally.⁴⁸ This statement, apparently contradictory to the opinion of Scotus, has its direct counterpart in the list of propositions concerning the relation between time and motion in our text. The apparent contradiction may have given rise to the *aporiae* discussed above.

Another work of Antonius that can be analysed as a likely source of inspiration for our author is his *Quaestiones super XII libros Metaphysicae*. In it, we find two questions focusing on the problems discussed by our

⁴⁶ Cf. IOANNES DUNS SCOTUS, *Quaestiones subtilissimae in Metaphysicam*, ed. L. Wadding, («Opera omnia» IV) Lugduni, 1639, p. 631a.

⁴⁷ *Ivi*, p. 632b.

⁴⁸ Cf. note 1 of this paper.

author: *Utrum idem nunc vel instans sit in toto tempore* (book III, q. 3) and *Utrum tempus sit idem cum motu* (book V, q. 11). It seems no coincidence that these titles closely resemble those of our author's; their contents bear striking similarities, too. The similarities range from the way problems are discussed, for instance in both works the discussion of the relation between time and motion is preceded by distinctions concerning types of motion, time and measure, to the solutions, to particular arguments, e.g. the *ratiōnes p̄incipales* of both questions on the instant contain the same argument saying that if there is only one 'now' in all time, things that happened in AD 1000 and today, would be simultaneous.⁴⁹

The solutions given in both works are convergent on most important issues. In Antonius' *Metaphysics* questions, we can find some familiar propositions. Antonius distinguishes between two types of time, general and spatial, which correspond to the motion of the *primum mobile* and particular mobile objects, respectively. He states that time is really identical with motion and instant with *mutatum esse*, yet they have distinct natures, or are different only *secundum rationem*. There are two ways of measuring: something is measured intrinsically, when the measure is really identical with the measured object, e.g. the common time and the motion of the *primum mobile*; something is measured extrinsically, when the measure is really different from the measured object, e.g. the common time and particular motions. Divisibility of time is introduced by something different from it. In all time 'now' or instant does not remain substantially the same.⁵⁰ Although these similarities are probably insufficient to state that

⁴⁹ ANTONIUS (?), *Quaestiones...*, f. 83v: «Quaeritur utrum instans secundum substantiam sit idem vel maneat idem et unum in toto tempore. Et videtur quod non, quia sequeretur quod illa, quae sunt nunc facta, et illa, quae sunt infra millesimum annum, essent simul, saltem similitate secundum substantiam. Si nec secundum substantiam, nec secundum esse est possibile, igitur <etc.>».

ANTONIUS ANDREAE, *Quaestiones super XII libros Metaphysicae*, Venetii, 1491, p. 15va: «Sed contra istam opinionem [...] arguitur [...] sic: illa dicuntur simul, quae sunt in eodem nunc indivisibili. Si ergo idem est nunc in toto tempore, ergo quae fuerunt in millesimo anno et quae sunt hodie erunt simul, quod est falsum evidenter».

⁵⁰ *Ivi*, f. 26ra-b: «Tempus est duplex, scilicet commune et spatiale [...] Primum [...] respondet motui primo pro mensura, [...] secundum [...] est numerus motus [...] et tale tempus spatiale est propria mensura motus inferioris, ita quo quot sunt motus particulares, tot sunt tempora huismodi spatialia. Tempus est idem realiter cum motu, ita et nunc cum mutato esse. Tamen cum illa identitate reali stat aliqua distinctio ex natura rei, vel saltem secundum rationem [...] Tempus commune, quod est passio primi motus, distinguitur realiter a motu inferiori [...] Tamen hoc non obstante quodlibet tempus est idem realiter cum proprio motu, cuius est passio et propria mensura.

Cum dicitur quod mensura et mensuratum differunt realiter, dico quod verum est de mensura extrinseca, et sic comparando tempus commune ad motus inferiores».

Ivi, f. 15vb: «Nunc est aliud et aliud secundum substantiam in toto tempore».

our author modelled his questions on the ones by Antonius, still it seems plausible enough that he may have known them.

The final reference point is Landulf of Caracciolo, who was the only contemporary philosopher quoted by name and with approval by the author of our questions. Beside the 'definition' of time as continuous quantity we can find a number of other propositions and concepts that seem to come from his commentary on the *Sentences*. The most noteworthy is the distinction between the instant of time, which measures the indivisibles in changes, and the instant of nature, which measures the being and non-being of things. It seems that the distinction between the *signa realia*, *signa naturalia* and *signa rationis*, the first of which cannot be assigned to an instant, in contrast to the other two, also comes from Landulf's work.⁵¹

Putting everything together, we can offer a few words of conclusion. The *Quaestiones in libros Physicorum* is, indeed, a Scotist work. It is a skilfully prepared, though not very original, piece of scholastic commentary. Its author borrows his opinions from authors, whose credentials as exponents of 'pure' teaching of Scotus are strong (but much less from Scotus himself), and argues against the views of those thinkers, who were openly critical towards the teachings of the Subtle Doctor, most of all Peter Auriol. He is well informed of the opinions circulating among the Franciscan scholars in Paris at the turning of the first and second quarter of the 14th century and is able to assess their proximity to or distance from the doctrine of Duns Scotus. In this way, his work is a valuable document of the early development of Scotism.

⁵¹ Cf. N. KRETMANN, *Continuity, Contrariety, Contradiction and Change*, in N. Kretzmann (ed.), *Infinity and Continuity in Ancient and Medieval Thought*, Ithaca & London, Cornell University Press, 1982, pp. 276-280.

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