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Damascius and al-Nazzām on the Atomic Leap

Michael Chase

CNRS Centre Jean Pépin—UMR 8230

goya@vjf.cnrs.fr

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Abstract

Like Damascius' ἄλλατα or leaps, al-Nazzām's (died ca. 849 CE) doctrine of the leap (Arabic *tafra*) seems to be an attempt to respond to Zeno's paradoxes of motion. After a survey of these paradoxes and Aristotle's responses to them, I discuss some points of resemblance between the physical doctrines of Damascius and al-Nazzām. To explain them, I adopt Richard Sorabji's suggestion of an historical influence by Damascius on al-Nazzām. After surveying objections to Sorabji's thesis, I make use of new paleographical discoveries to suggest that after Justinian's closure of the Platonic School of Athens, the last Neoplatonic philosophers may have taken the library of the School of Athens—including the ancestors of the core manuscripts of the *Collection Philosophique*—to the court of Ḥosrow I Anūšīrwān at Ctesiphon ca. 531 CE, where some texts that were the models of this *Collection*—which includes works by Damascius—may have been translated into Persian. This provides a new possible avenue by which al-Nazzām and other early Islamic theologians may have had access to some elements of late Greek philosophy even before the beginnings of the great translation movement sponsored by al-Ma'mūn (r. 813-833 CE).

Keywords

Zeno – Aristotle – Damascius – Collection Philosophique – Greco-Arabic translation movement

1 Introduction

Zeno's famous paradoxes intended to prove the non-existence of motion have been a thorn in the side of philosophers from the time of Pre-Socratics until today. Every natural philosophy, concerned as it must be with studying and explaining the phenomenon of motion and change, must confront them. In what follows, I wish to take up the comparison, first suggested by Richard Sorabji,¹ between the way the late Neoplatonist Damascius (c. 458-c. 550 CE) and the Mu'tazilite theologian Abū Ishāq Ibrāhīm al-Nazzām (ca. 760-ca. 845 CE) responded to Zeno's anti-motion paradoxes. Sorabji thought the resemblances were so close that it was possible to suppose some kind of historical influence by Damascius on Nazzām. After going over the evidence, I discuss some recent objections to Sorabji's thesis as raised by Marwan Rashed, before suggesting, on the basis of recent paleographical findings, some avenues by which al-Nazzām may actually have been familiar with at least some aspects of the philosophy of Damascius.

2 Aristotle and Zeno

According to Aristotle,² Zeno advanced four arguments against the postulate of the existence of motion: the Dichotomy, the Achilles, the Flying Arrow and the Stadium. Aristotle is really only interested in the first two, directed against the assumption that time and space are infinitely divisible, which is Aristotle's own position. The last two arguments, based on the assumption that time and space are atomic, are dismissed out of hand.

The Dichotomy argument claims that no process of motion can ever be completed, because before the moving object reaches its goal, it has to traverse half the distance to its goal; then half of that distance, and so on *ad infinitum*. Since no infinite distance can be traversed in a finite time period, there can be no motion. Aristotle considers the so-called Achilles argument to be merely a more colorful version of the argument of the Dichotomy: if Achilles is racing a tortoise, and the tortoise is given a head start, then the Homeric hero can never catch the testudineous reptile, because when Achilles reaches the spot whence the tortoise began, the latter has already advanced, and so on.

¹ Sorabji 1983 and 2004.

² Arist. *Ph.* 8.6. The literature on these paradoxes is of course enormous. Cf. Toth 1994, Köhler 2014, 25-42.

Aristotle had at least two responses to this problem. The first one, set forth in *Physics* 6.2 and 9 (233a21ff.; 239b11-19), was to invoke the infinite divisibility—that is, the continuity—of time and space. If a stretch of distance is infinitely divisible, and so is the time which one has available to traverse it, then one simply establishes a one-to-one correspondence between the parts of space and of time, and affirms that an infinitely divisible stretch of distance can be traversed in an infinitely divisible stretch of time. Aristotle's key idea here is that Zeno has confused infinite divisibility and infinite length:³ the fact that a stretch of distance can be divided at an infinite number of places does not imply that it is infinitely long, or that it would take an infinitely long time to traverse it.

At *Physics* 8.8, however, Aristotle no longer considers this solution to be adequate. A deeper solution, he now claims, is to say that although a continuum, since it is infinitely divisible, does indeed have an infinite number of halves, these halves exist only potentially, not actually. Each of the infinite number of points in a line is rendered actual only when an object in motion stops or changes direction at it, or, alternatively, when someone counts them. In such a case, both the object and motion and the person counting are 'using the one point as if it were two', i.e. as the end of the preceding stretch of distance and the beginning of the following one. Thus, Aristotle's deeper solution to Zeno's paradox is that an object in motion can indeed traverse an infinite number of points in a finite time, but only if those points are potential rather than actual.

3 Damascius and Zeno

Damascius, unlike virtually all the Neoplatonists we know of, seems not to have been satisfied by Aristotle's refutations of Zeno.⁴ To counter Zeno's first two arguments, Damascius proposed that it is not the case that time and motion are continuous, so that a mobile would have to traverse each of an infinite number of intervals of distance in an infinite number of moments of time: instead, time and motion consist of stretches that Damascius calls leaps or jumps (Greek ἄλματα), each of which is not pointlike, as were the instants of time for Aristotle, but has a certain extension (διάστημα).⁵ Objects in motion do not have to traverse each of an infinite number of points that separate them from

3 Sorabji 1983, 323.

4 For what follows, cf. Sambursky and Pines 1987, 18-19; Sorabji 1983, 52-63; Sorabji 2004, vol. 2, 206-207; Chase 2014.

5 This was already the case for Iamblichus; cf. Sorabji 1983, 39-40.

their goal: instead, motion can, as Damascius puts it, ‘advance completely by a whole step, and does not always require the half before the whole, but sometimes, as it were, leaps over whole and part’.⁶ Each ‘demiurgic section’ constitutes a complete interval (διάστημα) by which time progresses; likewise, the present time consists precisely in such a διάστημα. The result, for Damascius, as for modern quantum mechanics, is that things can simply disappear from one place and reappear in another, without having successively traversed all the intermediate positions.

4 Al-Nazzām and Zeno: the Doctrine of the Leap (*tafra*)

The Baṣrian Muʿtazilite thinker Abū Ishāq Ibrāhīm b. Sayyār b. Hāni al-Nazzām was born around 760 and arrived at the Abbāsīd court in Baghdad around 819 CE. Although he was a contemporary of the great translation movement under the caliph al-Maʿmūn (r. 813-833),⁷ the story goes that as a young man, well before the accession of al-Maʿmūn, al-Nazzām already boasted that he knew Aristotle by heart and could refute him point by point.⁸ While this story may be apocryphal, there is no reason to doubt al-Nazzām was familiar with Aristotle’s *Physics*, perhaps in the early translation by Sallām al-Abraš.⁹ According to Dmitri Gutas, “it was the introduction of the dualist, and hence, atomist cosmological doctrines into the debate [sc. on the eternity of the world] that occasioned the introduction of Aristotelian physics into Arabic thought”.¹⁰ Hence, for Gutas, it was the interest in theological debates, of the kind in which Nazzām frequently participated, that inspired the first Arabic translation of the *Physics*.

Unlike most of his Muʿtazilite predecessors and successors, al-Nazzām rejected atomism and was a partisan of infinite divisibility,¹¹ an idea he may

6 Damascius, in Simplicius, *Coroll. De temp.*, 796.33-797.2, trans. Urmson.

7 Literature on this translation movement is enormous. For an initial orientation, cf. D’Ancona 2016a; 2016b.

8 Van Ess 1991-1997, vol. 4, 298.

9 Most translations of the *Physics* known to us date from a generation or so after Nazzām’s death: they include those by Ishāq ibn Ḥunayn (d. 910), Qusṭā ibn Luqā (d. 912) and al-Dimašqī (d. 900), cf. Lettinck 1994, 3. Al-Nadīm (*Fihrist* 7.1, p. 244, 5-6 Flügel) mentions a translation of the *Physics* by a certain Sallām al-Abraš, ‘who was one of the early translators at the time of the Barmak family’; that is, in the reign of Hārūn al-Rašīd (786-809). Cf. Gutas 1998, 72-73. Nazzām also seems to have been familiar with at least some works by Philoponus; cf. n. 33 below.

10 Gutas 1998, 73.

11 Van Ess, 1991-1997, vol. 3, 309.

have taken over, as he did many others, from the early Shi'ite thinker Hišam b. al-Ḥakam (d. 795/814),¹² who was a generation older and may have been his teacher. Sources vary on whether Nazzām considered this infinite divisibility to be merely potential, or fully actual.¹³ Al-Nazzām seems to have used the theory of infinite divisibility to combat the atomism of his uncle, the eminent Mu'tazilite theologian Abū l-Huḍayl, who wrote a book against his nephew entitled *The Book of the Leap* (*Kitāb al-Ṭaḡra*). Here, he replied to Nazzām's doctrine of infinite divisibility with the following argument: if an ant were crawling along a sandal, it would never reach the end of it, if the sandal were infinitely divisible, for it would first have to traverse the first half of the sandal, then half of that, then half of that, and so on *ad infinitum*:

One of the arguments by means of which we prove [the indivisibility of the atom] is the argument which Abū l-Huḍayl formulated against al-Nazzām. The principle here is that someone who traverses (*al-qāṭi'*) some distance which has a half, cannot traverse (*yaqṭa'u*) this half until he has first traversed its half. Since this half in turn has a half, then the same applies here. If this is true, if an ant were to creep over a sandal, it could never traverse (*taqṭa'u*) the sandal because the parts of the sandal are infinite (*bi-lā nihāyatin*). The ant cannot complete the traversal of a part of the sandal except by first traversing its half, and so on forever. The connection of one part of the sandal to another part, with regard to its traversal, leads to the fact that the ant can never commence the traversal.¹⁴

Two centuries later, In the third book of his *Physics of the Šifā'*, Avicenna (980-1037 CE) alluded to this problem as follows:

They further said that if the parts of the body were not finite, then they would be infinite; but then a body would be divisible into half, and again into half, and so on infinitely. When something in motion intends to

12 Hišam had written a treatise to refute Aristotle's conception of God between 786 and 795 CE; this shows that *Physics* 8, *Metaphysics* Λ, or perhaps both, were available in Arabic at this time. Cf. Gutas 1998, 72. On the possibility that some doctrines from Aristotle's *Metaphysics* Θ may have been known to Islamic theologians as early as the first quarter of the eighth century CE, see Schock 2004. On Hišam, cf. Madelung 2012, and below, n. 44.

13 Only potential: van Ess 1991-1997, vol. 3, 322; 368. Actual: Baffoni 1982, 105-106; 309; Rashed 2002; Sabra 2006, 217. Ibn Sīnā, at any rate, assumed Nazzām believed in an actual infinity, and this became the predominant view in later Islamic doxographies. For a survey of these views, cf. Pines 1936, 11-12 n. 2, who concludes that Nazzām's actual opinion on this point cannot be determined.

14 Ibn Mattawayh, *Taḍkira*, p. 79.1f. Gimaret, translation Dhanani 1994, 160, slightly modified.

cross a given distance, it would need to cross half, but, before that, half of half of it, and in a finite time it would need to cross an infinite number of halves. So it could not cross the distance at all. Also, the fleet-footed Achilles could never catch up with the plodding tortoise, and the insect would never completely cross a sandal over which it travels (the first example in from the Ancients, the second is from the Moderns). Motion, however, exists. Therefore, the body's divisions are finite.¹⁵

Avicenna here clearly distinguishes between ancient (i.e., Greek) and modern (i.e., Islamic) variants of Zeno's paradoxes, intended to prove the impossibility of motion. However, instead of Zeno's paradox of Achilles and the tortoise, what Abū l-Hudayl had in mind would appear to have been Zeno's paradox of the dichotomy. Aristotle alludes to this paradox as follows:

Some gave in to both paradoxes¹⁶ ... the one from the dichotomy, by coming up with indivisible magnitudes.¹⁷

According to Aristotle's enumeration of Zeno's four arguments against motion in *Ph.* 6.9, then, we would have to do not with 'the so-called Achilles', according to which the faster pursuer cannot catch the slower pursued if the latter has a head start, but rather with the first Zenonian argument:

The first one is the one about the lack of motion (*peri tou mê kinesithai*), on the grounds that a mobile must arrive at the half before it arrives at the end. We have dealt with this in our previous discussion.¹⁸

Aristotle himself thinks Zeno's first two arguments amount to pretty much the same:¹⁹ in both of them, the result is that '<the mobile> does not reach the limit when the magnitude is somehow divided': i.e., in the words of Ross, both the first arguments "turn on the necessity for passing an infinite number of points before a point a finite distance from the start can be reached".²⁰

15 Avicenna, *Physics of the Šifā'*, 3.3.4, vol. 2, p. 276 ed. McGinnis 2009.

16 The first one being Parmenides' argument that the all is one; cf. Arist. *Ph.* 1.3.186a22ff.

17 Arist. *Ph.* 1.4.187a3: ἔνιοι δ' ἐνέδοσαν τοῖς λόγοις ἀμφοτέροις ... τῷ δὲ ἐκ τῆς διχοτομίας, ἄτομα ποιήσαντες μεγέθη.

18 Arist. *Ph.* 6.9.239b12-14: πρῶτος μὲν ὁ περὶ τοῦ μὴ κινεῖσθαι διὰ τὸ πρότερον εἰς τὸ ἥμισυ δεῖν ἀφικέσθαι τὸ φερόμενον ἢ πρὸς τὸ τέλος, περὶ οὗ διείλωμεν ἐν τοῖς πρότερον λόγοις.

19 This equivalence is denied by Toth 1994, 6.

20 Ross 1924, vol. 2, 659.

Assuming he was aware of the Aristotelian solutions to Zeno's paradoxes we mentioned above, al-Nazzām seems not to have been impressed by them, any more than Damascius had been three centuries earlier. Instead, we are told, he came up with a new argument, based on his doctrine of the leap (*tafra*).²¹ He described this concept as follows:

... one thing travels from its first place to a third place, without passing through the second one. This is the leap (*tafra*).²²

To solve Abū l-Huḍayl's objection, al-Nazzām claimed that the ant traverses (*taṭqa'u*) one part of the distance it must traverse, and leaps over (*taṭfiru*) another part.²³ According to atomist doctrine, as defended by Abū l-Huḍayl, all motion is the motion of atomically structured bodies in atomically structured, discrete space; that is, along a surface that itself consists of atoms.²⁴ Motion always takes place by one atom of a mobile 'covering' or 'being opposite' to one atom of a surface during one atom of time. When there are two bodies, such as a sandal and a bug crawling across it, and one moves across the other, at each instant one part or atom of the bug must be opposite to one part or atom of the sandal. If the parts of either are infinite, argues Abū l-Huḍayl, motion will be impossible, owing to Zeno's dictum that one cannot traverse an infinite distance in a finite period of time. To solve this paradox, al-Nazzām argues that motion, and hence time and space, are discontinuous. When the insect crawls across the sandal, it does not come in contact with each of the infinite parts of atoms of the sandal, but traverses only some of them and leaps over the rest. It follows that a body that is in one location can, at the next instant, be situated at another, different location, without having traversed the places in between, or in the words of Ibn Mattawayh:

the body is at the second instant in the tenth location without having traversed the intervening locations.²⁵

21 On Nazzām's doctrine of the *tafra*, cf. Badawī 1972, 135-137; Wolfson 1976, 514-516; Baffioni 1982, 109-110; Gimaret 1990, 54-58; van Ess 1991-1997, vol. 3, 310-324; Dhanani 1994, 176-181, Leaman 1998.

22 Van Ess 1991-1997, vol. 6, Text XXII, 27.

23 Ibn Mattawayh, *Taḍkira*, vol. 1, 79, 7 Gimaret.

24 Van Ess 1991-1997, vol. 3, 234-236.

25 Ibn Mattawayh, *Taḍkira*, translation Dhanani 1994, 176.

The doctrine implied, according to Ibn Mattawayh, that

It would be possible for someone who is in Baṣra at the present time will be in China at the next instant without traversing the <intervening> places, but rather by leaping....²⁶

Compare this use by Nazzām of derivatives of the root *t-f-r*, ‘jump, leap, bounce’, with Richard Sorabji’s account of Damascius’ doctrine of the leap (ἄλμα, βήμα):

Motion can occur cinematographically by discontinuous leaps, in which the moving body disappears from one spot and immediately reappears in another, without ever having been in between.²⁷

Undeterred, Abū l-Hudayl responded with a thought experiment. If one dipped the insect’s legs in ink, he claimed, it would leave a continuous trail along the sandal as it crawled, whereas if Al-Nazzām’s leaps existed, the trail would be discontinuous.²⁸

Al-Nazzām provided a number of arguments for the existence of the leap (*tafra*), reminiscent of the thought experiments by which Einstein tried to refute Bohr’s notion of subatomic entanglement, or what Einstein famously dismissed as “spooky action at a distance”. Most of Nazzām’s thought experiments, as they have been transmitted to us by more or less sympathetic doxographers, are rather obscure,²⁹ involving buckets being dragged up from the bottom of wells, insects creeping along the various sides of a right-angled triangle, or boards leaning against a wall and suddenly being shoved upwards.³⁰ I will concentrate here on a few examples of these arguments that are both

²⁶ Ibn Mattawayh, *Tadkira*, translation Dhanani 1994, 177.

²⁷ Sorabji 2004, vol. 2, 206. If Nazzām’s doctrine of the leap were true, Ibn Mattawayh goes on to say (*Tadkira*, translation Dhanani 1994, 177), one could see through walls, because the visual ray could leap from one side of the wall to another, and a prisoner could not be kept in jail, because he could leap across the walls that confined him. Of course, we know now that all these seemingly counterintuitive consequences are perfectly possible at the level of sub-atomic particles, where the phenomenon in question is known as quantum tunneling.

²⁸ Ibn Mattawayh, *Tadkira* 169, 13-170, 5 ed. Luṭf-Awn = Nazzām, text 32, in van Ess 1991-1997, vol. 6, 18-19. According to van Ess, this argument may be a later interpolation. One thinks of the debate over the validity of attributing existence and continuous motion to subatomic particles on the basis of the traces they leave behind in a bubble chamber; cf. D’Espagnat 1997.

²⁹ Cf. Dhanani 1994, 176-181; van Ess 1991-1997, vol. 3, 310; 315-323; vol. 6, 13-26.

³⁰ On this example, cf. Gimaret 1990, 53-54.

more readily comprehensible and more interesting for their possible parallels with Neoplatonic thought.

5 Damascius and Nazzām on the ‘Leap’

The fact that the planets have different periodicities of orbit, and hence different speeds, was a source of puzzles for the Ancients.³¹ Philoponus,³² followed by Nazzām,³³ had used these differences to argue for the temporal finitude of the world, i.e. its creation in time. If the planets orbit at different speeds, Philoponus argued, but the world has no beginning, then Saturn, the slowest planet, will have completed, at any given time, an infinity of motions. But this means that Jupiter, which orbits more quickly, will have completed three times as many revolutions as Saturn, the Sun 30 times as many, the moon 360 times as many, etc. Yet no infinity can be greater than another,³⁴ so this is impossible. Hence, the world’s temporal existence is finite.

Damascius, for his part, mobilizes his theory of the leap (ἄλμα) to explain the differences in the orbital speeds of the planet, although in a way which, typically enough for Damascius, is—at least to me—far from pellucid:

... since time always flows and progresses by leaps (κατὰ ἄλματα), each leap is simultaneously whole and indivisible, in accordance with the mode of existence of progress by intervals. But each leap has a different measure, that of the star which moves more slowly being lesser, that of the <the one that moves> faster being greater. That is why it covers the

31 At least since the time of Anaximander. Cf. Pl. *Ti.* 36c-39b; Arist. *Cael.* 2.8.289b17-30, and in general Bowen 2013.

32 Apud Simp. *in Ph.* 1179, 15-26 Diels = Phlp., *Against Aristotle*, fr. 132 Wildberg 1987.

33 Nazzām, text. 121, vol. 6, 108-109 van Ess = al-Ḥayyāt, *Intiṣār*, p. 35, 4-36, 9 Nyberg. Nazzām seems to have been the first to introduce these arguments into the Kalām, in his works against the Dualists and the Eternalists (*Dahriyya*); cf. van Ess 1991-1997, vol. 3, 394; Davidson 1987, 120; Lettinck 1994, 235-236. Cf. also Ibn Ḥazm, *Fiṣal* 5, argument 4, p. 96, 3-13, ed. Cairo 1317 H., which sets forth Nazzām’s reasoning albeit without mentioning the latter’s name. Although Badawi 1972, 119-120 and Baffioni 1982, 153-154 translated and discussed this text by Ibn Ḥazm, both fail to notice its relation to Philoponus’ argument (Baffioni believes Nazzām’s arguments were directed against Anaxagoras and Zeno).

34 For medieval Scholastic denials of the impossibility for one infinity to contain or be larger than other, see Murdoch 1968. But the Ḥarrānian mathematician and philosopher Ṭābit ibn Qurra (ca. 826-901), who believed in an actual infinity, already held that one infinity could be larger or smaller than another. Cf. *Among the Questions that Abū Mūsā ‘Īsā ibn Usayyid asked to Abū al-Ḥasan ibn Usayyid asked to Ṭābit ibn Qurra* 18, text and translation Rashed 2009, 636-637; commentary *ibid.* 669-661; Pines 1968.

same circle more quickly. But since their motions are different, their times must be different as well ... For it is not possible for there to be progress in any other way, if the trajectory were to take place by unextended things. These leaps, then, which are temporal measures determined by demiurgic sections, and indivisible at least in that respect, and each of them being simultaneously entire, we must say that they indicate the pause of time as it advances, and is called a 'now', not as the limit of time, but as a time that is demiurgically indivisible time, although it is divisible in our own conception, and infinitely so. Indeed, every body is infinitely divisible, but there are indivisible demiurgic sections of bodies.³⁵

I take it that what Damascius means is that since motion is not continuous, but takes place by leaps, in the case of a quicker celestial body such as the moon, the motion takes place by leaps whose 'measures' are larger, that is, which cover more distance. The motion of a celestial body such as Saturn, which is slower, will take place by smaller leaps which cover less distance. Note that each leap is both a 'now', and a 'time', and is both indivisible *qua* demiurgic measure and infinitely divisible in thought. However, unlike Aristotle, for whom time is not made up of nows or instants, for Damascius time is composed of the leaps that can also be called 'nows'.

Whatever the details of this rather obscure explanation, it seems clear that the differences between the speeds with which planets traverse the zodiac is explained by virtue of the leaps by which they progress.

We find a similar notion in al-Nazzām, albeit in a quite different context. Al-Nazzām asks us to consider atoms on a rotating millstone:³⁶ one on the periphery, for instance, and another near the axis.³⁷ The circles described by

35 Dam. *In Parm.*, vol. 3, 191, 13ff. Westerink and Combès. Cf. the translation in Sorabji, 2004, vol. 1, 207.

36 Other sources use the example of a spinning top instead of a millstone; cf. Gimaret 1990, 55-56.

37 I follow the clear exposition of Dhanani 1994, 177-178. According to Baffioni 2002, 109-110, the point of this example adduced by the anti-atomist Nazzām was to prove that different accidents (some slower, some faster) can inhere in an atom, thus demonstrating that it is divisible. But this is surely wrong: in Nazzām's example it is not the *same* atoms that move faster and slower, but *different* atoms, i.e. those closer to the center of the millstone or the top, and those near its extremity. Baffioni's interpretation of her main evidence (Al-Nazzām, Text 37 van Ess = Aš'arī, *Maqālāt*, 321, 7-10) is, moreover, based on a faulty translation; cf. van Ess 1991-1997, vol. 6, 23.

A similar objection was raised against atomism in late Latin Scholasticism, where it became known as the *rota Aristotelis*; cf. Maier 1966, 163-164; Dijksterhuis, 1983, 471-472; Jammer, 1993³, 65-68. Sketched at Arist. *Cael.* 2.8, the problem was formulated more

these atoms, as the millstone rotates, have a different radius, but they all move together with the millstone. The atoms on the periphery of the millstone describe a larger circle, and therefore cover more distance,³⁸ in the same period of time as the atoms closer to the axis of the millstone describes a smaller circle. Suppose the circumference of the larger circle, near to or on the periphery of the millstone, consists of 100 atoms, and the smaller one, near the axis, of ten atoms. Then, in the same period of time, the smaller circle will traverse an atomic space consisting of ten atoms while its periphery traverses a space consisting of one hundred atoms. This is only possible, claimed Nazzām, if the larger circle, near the periphery, traverses or comes to be opposite only some only some of the 100 corresponding atoms in the air that surrounds it, and leaps over others.³⁹

We seem, then, to have here a similar idea applied to very different contexts. For Damascius, the doctrine of the atomic leap serves to explain how one (celestial) body can traverse the same space in less time than another. For al-Nazzām, the atomic leap explains how two different parts of a millstone or a top can cover different distance in the same period of time.

Finally, al-Nazzām seems to have used the notion of the leap (*tafra*) to explain instantaneous action at a distance. If the rising sun illuminates the entire earth as soon as it appears in the sky, although it is far away from our planet, this is to be explained by the leap.⁴⁰ The same holds true for the fact that we see the heavens as soon as we look at them: if our visual rays required time to traverse the intervening distance, we would see them only after some length of time. Instead, the instantaneous action of vision is likewise to be explained by the *tafra*. According to Nazzām, not only light, but also cold can 'leap': in the

explicitly in question 24 of the pseudo-Aristotelian *Mechanica*. A similar problem is dealt with in the *Mechanica* of Hero of Alexandria, which is preserved only in Arabic; cf. 1.7, p. 17-19 Nix and Schmidt 1900, although here the circles in question, while attached to one another, are not concentric.

38 Cf. Arist., *Cael.* 2.8.289b33-34: 'for circles fixed (*endedemenôn*) around the same center, it is reasonable that the larger circle should move more quickly'. Guthrie's Loeb translation of 1939 is poor here: 'seeing that the stars are dotted (!) around one and the same center'.

39 Al-Nazzām, Text 36, in van Ess 1991-1997, vol. 6 = Juwaynī, *Šāmil* 436, 19-22 ed. al-Naššār 'Awn-Muḥtār. For modern interpretations, cf. van Ess *op. cit.*, vol. 3, 320; Sorabji 1983, 387-391; Dhanani 1994, 177-178, and for ancient discussions Avicenna, *Physics of the Šifā'*, 3.3.15-16, vol. 2, p. 279 McGinnis; Maimonides, *Guide* 1.73, p. 198-199 Atay. The atomists' response was that the atoms near the center of the millstone rotate less quickly because they are interrupted by moments of rest; cf. van Ess *op. cit.*, vol. 3, 236-237; Rashed 2002. Yet if some atoms of the millstone paused while others kept moving, the millstone would be ripped apart; cf. Dhanani 1994, 178.

40 Ibn Fūrak, *Mujarrad*, 207, 21-33 Gimaret; Ibn Mattawayh, *Tadkira*, 204, 11-16 Lutf-'Awn = Nazzām, Text 43 in van Ess 1991-1997, vol. 6, 26-27.

process whereby a piece of wood burns, for instance, the cold that had been latent within it instantaneously rushes toward the earth, which is likewise cold. If, in its passage from the wood to the earth, the emerging cold does not freeze everything along its path, this is because it is not continuously opposite or covering (*muḥādāt*) the individual points of space along its itinerary, but leaps instantaneously over them.⁴¹ Although in his extant works Damascius does not seem to have used his notion of the leap (ἄλμα) in the context of explaining instantaneous action, he does think of the leap of time itself as occurring ‘all at once’.⁴² The doctrine of instantaneous action or creation does play an important role in Neoplatonism, especially in the Christian Philoponus, and it seems to have been endorsed by Nazzām.⁴³

6 The Parallels between Damascius and al-Nazzām: In Search of an Explanation

If we grant, on the basis of what precedes, that there are non-trivial resemblances between the atomic leap (ἄλμα) of Damascius and the *tafra* of al-Nazzām, how are we to explain this similarity? Is it a matter of sheer coincidence, or could al-Nazzām,⁴⁴ in one form or another, have had some kind of access to some aspects of the thought of Damascius?

Scholars differ widely in their view of the question, which is closely linked to the difficult question of the origins of Islamic atomism. Wolfson⁴⁵ had postulated a lost pseudo-Democritean writing as the source for Kalām atomism; Baffioni thinks Islamic theologians derived it from Aristotle’s criticisms of this doctrine, particularly in the *Physics*;⁴⁶ while Dhanani, for his part, believes that *Kalām* atomism ultimately derived its doctrine of minimal parts in

41 Jāḥiẓ, *Ḥayawān*, vol. 5, 19, 5-20, 3 Hārūn = Nazzām, Text 53 in van Ess 1991-1997, vol. 6, 39. Hārūn. For the reading and interpretation of this text, the difficulty of which may be partly due to the poor quality of the only standard edition of the *Ḥayawān* (cf. Bennett 2013), I follow van Ess, *loc. cit.*, 40.

42 τὸ ἅλον ἀθρούτερον βῆμα, Dam. *On Time*, in *Simpl. in Ph.*, vol. 9, 797, 28 Diels; cf. ἄθρου, *ibid.*, 797, 32. However, the works of Damascius that happen to have been preserved deal primarily with metaphysics, not physics, so perhaps arguments *e silentio* are hazardous.

43 Ibn al-Ḥaiyāt, *Intiṣār*, § 31, p. 44, 12-13 Nader: for Nazzām, creation takes place ‘in a single instant’ (*fi waqdin wāḥidin*). On the importance of the notion of instantaneous action in Greco-Roman Neoplatonism, particularly John Philoponus, see Chase 2011, 133-147.

44 Or perhaps Hišam ibn al-Ḥakam, a generation earlier, if it is true that al-Nazzām took over the doctrine of the leap, along with most of his other physical doctrines, from Hišam.

45 Wolfson 1976, 472-486.

46 Baffioni 1982, 88-89.

matter, space, time, and motion from Epicurus.⁴⁷ Yet, as van Ess points out, early Kalām atomists may also have been influenced by Iranian dualists such as Nu‘mān, executed by al-Mahdī (r. 775-785 CE), and one important intermediary may have been the Syrian philosopher Bardesanes (154-c. 222 CE), who seems to have defended a form of atomism in his cosmology.⁴⁸ Thus, the proximate origins of Kalām atomism, for Dhanani, “are Dualist, while its remote origins are Epicurean”. These original sources were, however, not known to the *mutakallimūn* through preserved or translated Greek writings, but through “oral transmission of an eclectic jumble of Hellenistic doctrines”.⁴⁹

As far as the doctrine of the leap is concerned, Richard Sorabji is the main proponent of some form of direct influence on the part of Damascius upon Nazzām. Van Ess admits some plausibility to this view, citing Damascius’s stay in Persia.⁵⁰ Yet he also adduces several considerations that go against it. What is new in Damascius is the fact that time moves forwards in leaps, but this doctrine, claims van Ess, is not relevant to Nazzām. One may wonder: Dhanani has pointed out that “[h]is adoption of the theory of leaping motion implies that al-Nazzām must also hold the doctrine of time atoms”,⁵¹ and while this is not quite the same thing as a theory of temporal leaps, it is reasonably close to it.⁵²

Van Ess also points out that Damascius belongs in a tradition: the doctrine that time progresses by leaps seems to have been known to Sextus Empiricus.⁵³ He also emphasizes that the possibility of instantaneous action was defended intermittently by Aristotle, and, one might add, by the entire tradition of Aristotelian commentators, especially Themistius and Philoponus.⁵⁴

47 Dhanani 1994, 192.

48 Cf. Drijvers 1966, 137-140; Camplani 2003-2004, 44-48; Ramelli 2009, 176.

49 Dhanani 1994, 187.

50 Van Ess 1991-1997, vol. 3, 324. It is a bit of a stretch to claim, with van Ess, 324 (and n. 1), that at *In Parm.* vol. 2, 56, 6-12 Westerink and Combès, Damascius states that ‘things are in motion at the moment of their creation’. Damascius does not speak of creation here or elsewhere, but merely distinguishes two kinds of motion: one as a genus of being—i.e. one of the five *megista genê* of the *Sophist*—, the other as ‘the simultaneous procession of all things from the indivisible ... the procession of all things that holds all things simultaneously as they proceed forth’.

51 Dhanani 1994, 176.

52 An anonymous reviewer points out that the move from leaps of motion to leaps of time seems to require either the Aristotelian notion that time *just is* the countable aspect of motion or other change, or that time is measured by the motion of a celestial clock. On the view that spatial atomism implies temporal atomism, cf. Maimonides, *Guide* 1.73, proposition 3, p. 201, 20-21 Atay.

53 Cf. Sorabji 1983, 389.

54 Cf. above, n. 43.

However, it is Marwan Rashed who has raised the most serious objections against Sorabji's notion of a more or less direct influence of Damascius on Nazzām.⁵⁵ He adduces three main grounds for reserve.

1. Nazzām's doctrine can best be understood in the context of his polemics against Abū l-Huḍayl's sequentialism. I would respond that this is certainly true, but it amounts, in my view, to sidestepping the question of eventual Damascian influence rather than answering it. Of course, a full understanding of any philosophical debate must situate that debate within its contemporary context. But this need not, in my view, rule out a certain amount of *Quellenforschung*. Either al-Nazzām—and, for that matter, his main opponent Abū l-Huḍayl as well—invented the doctrines they defended against one another *ex nihilo*, or else they were at least partially inspired by sources, which of course they will have adapted to their contemporary needs and cultural context. It seems legitimate to inquire into the nature of these sources, without for a moment implying that this approach exhausts the interest of the subject, or turns the Islamic protagonists into merely copyists of other people's philosophy.

Rashed's point appears to be the following. Rather than saying that al-Nazzām and Abū l-Huḍayl derived their ideas from, or 'respond to', any translated Greek writings, it is rather the case that the commentators on Aristotle's physics were being translated into Arabic "at about the time of Abū al-Hudhayl and al-Nazzām", and the reasons these translations were being made was "to clarify the various issues pertaining to the problem of the continuum".⁵⁶ Thus, Rashed's position comes close to that of Gutas, for whom, as we have seen, Islamic interest in, translation of, and commentary upon Aristotle's *Physics* was inspired by Islamic theological debates.

One may grant these points, but they still do not provide an answer to our question of how it came about that al-Nazzām and Abū l-Huḍayl became interested in such issues. Theories of the continuum, that is, of space, time and motion, Rashed writes, were "broadly recognized as crucial, for it appeared very soon that a clear grasp of its main tenets was a prerequisite for any discussion of divine efficiency and/or creation".⁵⁷ But who first made this recognition, and to whom did this appear? We have seen in what precedes that Nazzām was familiar with at least some of the arguments of John Philoponus against

55 Rashed 2010.

56 Rashed and Chiaradonna 2010, 297.

57 *Ibid.* 287.

the eternity of the world, and was probably familiar with Aristotle's physics.⁵⁸ In short, it seems possible to agree with Rashed that in the case of the debate between al-Nazzām and Abū l-Huḍayl, “what we see here is a new reading of Greek sources oriented by Islamic theological discussions”, and—pace Rashed's denial—that the two *mutakallimūn* were, at least to some extent, “responding’ to, Greek ideas on the continuum”,⁵⁹ or at least utilizing such ideas.

2. Second, Rashed points to what he considers important differences between the doctrines of Damascius and Nazzām. Damascius' doctrine is said to be “halfway between atomism and continuous creation”.⁶⁰ Damascius does not believe that a moving body is recreated at different positions in its trajectory. Instead, he posits sequential motion, each part of which is extended and indivisible, in a time that is extended and indivisible.

This summary of Damascius' kinetic thought requires some qualifications. Clearly, it is not the case that Damascius believes a body in motion is recreated at various stages of its motion—but it is almost certain that Nazzām does not believe this either, as we shall see. As far as the indivisibility of Damascius' leaps is concerned, Damascius emphasizes that they are both divisible and indivisible: indivisible insofar as they are ‘demiurgic sections’, divisible in that they are infinitely divisible in our minds.

Rashed's assertion that Nazzām believes in continuous recreation—i.e. that he is an occasionalist⁶¹—is, I believe, mistaken. Rashed does not mention the source(s) on which he bases his affirmation, but they probably include such passages as the following, from the *Intiṣār* of al-Ḥayyāt:

Then he [sc. Ibn al-Rēwandī] <said that>: he [sc. al-Nazzām] claimed that God creates the world and all that it contains at each instant.⁶²

58 Van Ess 1991-1997, vol. 3, 312, who points out that Nazzām's contemporary Muḥammad b. al-Jahm al-Barmakī had read the *Physics*, the *Organon* and the *De generatione et corruptione*. Interestingly, al-Barmakī also carried out translations from Persian to Arabic; cf. van Ess 1991-1997, vol. 3, 207. Ḍirār b. ‘Amr (ca. 728-796 CE) wrote a *Book of Refutation of Aristotle on substances and accidents* (van Ess 1991-1997, vol. 5, 229 n. 9).

59 Rashed and Chiaradonna 2010, 297.

60 *Ibid.* 296.

61 Rashed and Chiaradonna 2010, 286: “God re-creates the body at different positions on its trajectory”. Cf. Rashed 2002.

62 al-Ḥayyāt, *Intiṣār*, § 31, p. 44, 20 Nader = van Ess 1991-1997, Text XXII, 122, vol. 6, 110: *anna Allāh yaḥluqu al-dunyā wa mā fihā fī kulli ḥālīn*. As van Ess points out *ad loc.*, this passage is probably the origin of other similar reports in Kalām literature.

Yet al-Ḥayyāt immediately goes on to add:

These comments have been reported as belonging to Ibrāhīm <sc. al-Nazzām> only by ‘Amr b. Baḥr al-Jāḥiẓ, whereas his companions have denied it.⁶³

Van Ess’ explanation⁶⁴ of this delicate testimony seems to me convincing: for Nazzām, what is new at each moment are perceptions or phenomena, rather than things themselves. This interpretation is confirmed by a text which van Ess does not adduce: according to his disciple Ibn Fūrak, al-Aš‘arī, who was thoroughly familiar with Nazzām’s works, refuted the latter’s doctrine of the *tafra* as follows:

He declares absurd Nazzām’s doctrine of the *tafra*, saying that it is absurd that a substance should be found in one place, then immediately afterwards in another place distant from the first, without having ceased to be and [then] having returned to being.⁶⁵

As Gimaret explains,⁶⁶ Aš‘arī here asserts that motion by means of the *tafra*—which he rejects—could only be possible if the mobile ceased to exist after being in the first place, then was immediately recreated by God in a place further along in its itinerary. But the fact that Aš‘arī adduces this argument as a *refutation* of the doctrine of the *tafra* clearly implies that Nazzām did *not* hold, *pace* Rashed, that a moving body is recreated by God at different positions in its trajectory.⁶⁷

3. Rashed goes on to argue that Damascius’ topology is identical to that of Aristotle’s opponents, and to that of various atomists, including Abū l-Ḥudayl. This also seems questionable. In the surviving fragments of his treatise on number, space, and time, Damascius praises Aristotle’s conception of time and

63 *Wa-qad ankarahū ašḥābuhū ‘alayhi* p. 44, 21 Nader. Cf. Bennett 2013.

64 Van Ess, 1991-1997, vol. 3, 368-369.

65 Ibn Fūrak, *Mujarrad*, 207, 18-20 Gimaret: *wa-kāna yuḥīlu qawla al-Nazzām fi al-taфра, wa-yaqūlu annahū yastaḥīlu an yūjida al-jawhar fi maḥall ṭumma yūjidu ba‘da ḍalika fi mā warā‘thi min al-maḥall bi-lā faṣl min ġayri ‘adam wa-ḥudūt.*

66 Gimaret 1990, 55 n. 12.

67 In addition, several other sources attest that Nazzām, far from being a proto-occasionalist, believed that God creates all things at once, in the sense that he creates the primary bodies or ingredients of change; natural or human-induced processes are then responsible for all subsequent change. Cf. Šahrastānī, *K. al-Milal*, p. 82, iff. Badrān = vol. 1, 207 Gimaret and Monnet 1986; Nazzām, fr. 122, vol. 6, 110 van Ess = al-Ḥayyāt, *Intiṣār*, p. 51, 17-52, 3 Nyberg.

motion: neither proceeds by, nor is made up of indivisibles, but both are continuous and infinitely divisible.

4. Finally, and perhaps most crucially, Rashed argues that Damascius is unknown to the Arabic tradition; in other words, he was not translated into Arabic.

This certainly corresponds to the *communis opinio* among scholars of Arabo-Islamic philosophy. Damascius is not mentioned, as far as I know, by any Arabo-Islamic bio-bibliographical source.

How much weight should be ascribed to this objection that Damascius cannot have been influential on the Islamic tradition, since his name is unknown to the Arabic bio-bibliographical tradition? Only a limited amount, in my view.

i. This is an argument *ex silentio*, and as such depends on the Arabic material that happens to have come down to us and/or has been edited and published as of today. It is subject to falsification at any time by the discovery of new documents bearing the name of Damascius.

ii. Assuming that Damascius' name really is completely absent from the Arabic sources: would this prove that aspects of his thought cannot have been influential on Islamic philosophy? To maintain this would be to underestimate the importance of pseudonymy in Islamic philosophical literature. For instance, if one were to judge by the greatest of the Arabic bio-bibliographical sources, the *Fihrist* of al-Nadīm, one might conclude that Plotinus had no influence of Islamic thought, since his name does not occur in this vast work.⁶⁸ Nevertheless, as is now well known, the thought of Plotinus was in fact hugely influential via the paraphrastic translation of extracts from the *Enneads* known in modern scholarship as the *Plotiniana arabica*, and especially the pseudepigraphic *Theology of Aristotle*, which has been judged to be the single most influential work in all of Islamic philosophical thought. Similarly, if (extracts from) Damascius were available in Arabic, they need not have circulated under his name, but may well have been anonymous or pseudepigraphic.

68 The name of Plotinus is also absent from the vast *Book of Religions and Sects* by the Persian historian al-Šahrastānī (1086-1153 CE; cf. Jolivet, Monnot and Gimaret 1986), although Šahrastānī does transmit (ch. 4, vol. 2, 329-333) a collection of 'Sayings of the Greek Sage', now known to be based on the *Enneads*. Just how little the historical Plotinus was known to the Arabic tradition is indicated by the report on him by the bio-bibliographer Ibn al-Qiftī (c. 1172-1248), who writes (*Ta'riḥ*, p. 257, 1-5 Lippert, Leipzig 1903): 'This man [sc. Plotinus] was a sage residing in the land of the Greeks, and he interpreted some of Aristotle's works.' In fact, of course, Plotinus, born near Alexandria, spent most of his adult life in Rome, and never, as far as we know, published any 'interpretations' of Aristotle's works. Al-Qiftī claims to know that some of Plotinus' works were translated into Syriac, but admits he does not know whether any were rendered into Arabic.

iii. Finally, if, I as I suggest below, some version of some doctrines by Damascius was initially translated, not into Arabic but into Middle Persian, then the objection that his name is missing in Arabic would be irrelevant.

7 Greek into Persian

How plausible is this last possibility? While translation activity from Persian into Arabic in the first two centuries after the Hijra is well attested and studied,⁶⁹ relatively little is known about the translation of Greek texts into Middle Persian, largely because secular Middle Persian literature has almost completely disappeared.⁷⁰ The Zoroastrian priests responsible for copying, transmitting and preserving Middle Persian texts had little interest in secular works.⁷¹ Yet scholars have shown that several Greek scientific works were indeed translated into Middle Persian under the Sassanians, to then be re-translated into Arabic under the 'Abbāsids (c. 750-825).⁷² This was the case, for instance, for the *Geoponica* of Cassianus Bassus Scholasticus;⁷³ the *Carmen astrologicum* of Dorotheus;⁷⁴ Vettius Valens's *Anthologiae*; Teucros of Babylon's⁷⁵ *Paranatellonta*; and the *De stellis Beibeniis* attributed to Hermes Trismegistus.⁷⁶ Kevin van Bladel has recently suggested that a large number of Hermetic works were translated into Persian before being rendered into Arabic.⁷⁷

69 Key figures include the Persian Ibn al-Muqaffa' (on whom cf. Bosworth 1983, 487-490; van Ess, 1991-97, vol. 2, 22-36; Endress 1987, 413; 420; Gabrieli 2012), executed under al-Manṣūr ca. 755 CE, who may have been at the head of a workshop responsible for producing Persian-Arabic translations (van Ess 1991-1997, vol. 2, 26). These included an epitome of Aristotle's *Organon* down to the *Prior Analytics*; Persian literary classics such as the *Kalīla wa-Dimna* (from a Middle Persian adaptation of the Sanskrit original); historical chronicles and accounts of courtly mores at the Sassanian court, and, quite possibly, some Iranian works later considered to be heretical: those of Mani, Ibn Dayṣān, and Marcion for instance (Gutas 1998, 65; van Ess, *loc. cit.*). On Abān al-Lāḥiqī (ob. 815), who translated biographies of Ardašīr, Ḥosrow I, and perhaps the *Book of Mazdak* from Middle Persian into Arabic, cf. van Ess 1991-1997, vol. 2, 36-37.

70 Boyce 1968, 30; Bosworth 1983, 486; van Bladel 2009, 23.

71 Panaino 2001, 37.

72 Boyce 1968, 36; van Bladel 2009, 27, with literature cited n. 20.

73 Known in Arabic as Qusṭūs ibn Iskūrāstikina, this author's work was translated into Persian as the *Warz-nāma* (Endress 1987, 413; Panaino 2001, 37-38).

74 Van Bladel 2009, 28. The Persian version was in turn translated into Arabic by 'Umar ibn al-Farruḥān al-Ṭabarī (d. ca. 815), a client of the Barmakid Yaḥyā ibn Ḥālid; cf. Endress 1987, 420; 422.

75 Known in Arabic as Tankalūšā/Ṭinqarūs; cf. Endress 1987, 413; Panaino 2001, 38.

76 Van Bladel, 2009, 28; Panaino 2001, 37-38.

77 Van Bladel 2009.

As far as strictly philosophical texts are concerned, the most important example of a Persian adaptation of Greek philosophical doctrines is the work of Paul the Persian. Active at the court of Ḥosrow I, whom he may have instructed in philosophy, Paul's works—an explanation of the *Peri Hermeneias*,⁷⁸ a treatise on logic dedicated to Ḥosrow I, and an introduction to Aristotle's philosophy—represent a continuation of the teachings of the Alexandrian Greek Alexandrian commentators on Aristotle, and were originally written in Persian before being translated into Syriac.⁷⁹

Finally, there are a number of works preserved in Arabic that contain a mixture of practical and esoteric lore, such as the *Nabataean Agriculture* (*al-Filāḥa al-nabaṭiyya*),⁸⁰ the *Book of the Secret of Creation* (*Kitāb Sirr al-Ḥalīqa*),⁸¹ and the *Book of the Secret of Secrets* (*Kitāb al-Siyāsah fī tadbīr al-riyāsa al-ma'rūf bi-Sirr al-asrār*).⁸² Despite their differences, these works are characterized by at least two features that are of interest to us here: they share certain themes and terminology that some scholars have identified as Neoplatonic, and some connection with Iran has been shown, or at least suggested, in the case of all of them.⁸³ More specifically, they share a focus on the role of the four elements and four elementary qualities in cosmology,⁸⁴ an interest which, as van Ess has

78 Edited with French translation and commentary by Hugonnard-Roche 2012.

79 Cf. Gutas 1983, Endress 1987, 489; Teixidor 2003; Hugonnard 2012, 184; Sorabji 2016, 50. The account of Paul and his work provided by Scardino 2015, 46 is inaccurate.

80 Ed. Fahd 1993-1998. The author of this work was Ibn Waḥṣiyya (d. ca. 931 CE), but the question of his sources is the subject of much debate. Ibn Waḥṣiyya claims to have translated the work 'from the Nabataean', but some modern scholars have interpreted this to mean 'from the Pahlavi' (Travaglia 2001, 11 n. 18). On this work, which is closely related to the *Book of the secret of creation* (Travaglia 2001, 10-11), see Hämeen and Anttila 2006; Scardino 2015, 207-213; on its Neoplatonic elements, cf. Mattila 2007; Hämeen and Anttila 2006, 29; 41; 122.

81 Ed. Weisser 1979. The original recension of this work may date from as early as the 8th century CE (Weisser 1979, 21), perhaps during Nazzām's lifetime. For studies, see Kraus 1942, 270-303; Weisser 1980; Travaglia 2001, 46 who speaks of "la presenza nel *Sirr* di un neoplatonismo teologizzato".

82 Ed. Badawi 1954, 82-171. For the Persian elements of this work, cf. Grignaschi 1975, 76-79; 222-233; van Bladel 2004; on its Neoplatonic elements: Grignaschi 1975, 83-85.

83 See also the *Book of Treasures* by Job of Edessa, ed. and transl. Mingana 1935. The Nestorian Job of Edessa was a contemporary of al-Nazzām, whom he may have known personally, and with whom he engaged in polemics on questions of physics; cf. van Ess 1991-1997, vol. 3, 333-335. On the "almost complete identity" of the themes of Job's *Book of Treasures* with those of the *Book of the secret of creation*, cf. Kraus 1942, 276-280. Other similar works include the *Turba Philosophorum* and the alchemical *Corpus* of the Ps.-Jābir ibn Ḥayyān; cf. Travaglia 2001, 7-9.

84 Travaglia 2001, 12. On the four qualities as constitutive of all reality, cf. *Nabataean agriculture*, vol. 1, 673, 17-674, 8 Fahd.

shown,⁸⁵ was common among Iranian-influenced dualists and other heterodox thinkers (*zanādiq*) in the first two centuries of Islam, as well as among the thinkers to whom Nazzām and later heresiographers refer as the ‘proponents of nature’.⁸⁶

A detailed comparison between the cosmology and the role of the four Aristotelian elements and/or the four primary qualities, on the one hand in these Arabic works and on the other in Middle Persian thought as preserved in the *Dēnkard*, remains a *desideratum*.⁸⁷ This immense Iranian encyclopedia, which began to take shape during Nazzām’s lifetime but contains much older material,⁸⁸ features a cosmology—or rather, cosmologies—that bear striking affinities to the works we have just surveyed.⁸⁹ In particular it tells of a cosmogonic scheme in which the Creator Ormazd gives birth from his Endless Light, through the instrumentality of the heavens, first to Being (*bavišn*), conceived as matter or as the hot-and-moist.⁹⁰ In a second stage, by means

85 Van Ess 1991-97, vol. 1, 424-426; vol. 2, 39-40.

86 As van Ess, *loc. cit.*, points out, the alchemist Jābir ibn Ḥayyān (probably not a historical personage, but a name attached to a vast and variegated corpus whose composition extended over a long period of time) considers himself to be one of these *aṣḥāb al-ṭabā’i’*, who were associated, and sometimes identified, with an equally elusive group known as the ‘Eternalists’ (*al-dahriyya*) (van Ess 1991-1997, vol. 2, 40; Kraus 1942, 98; 165-166 n. 7). On the *aṣḥāb al-ṭabā’i’*, cf. van Ess 1991-1997, index s.v. (vol. 4, 1036); Crone 2016, vol. 3, 133-137; on the *dahriyya*, cf. Daiber 1997, 184-197; Crone 2016, 96-117.

87 On the *Dēnkard*, an immense encyclopedic compendium which contains almost one-third of all extant Middle Persian literature, see the thorough survey by Cereti 2001, 41-78; Gignoux 1996. For translations, cf. Menasce 1968 (book 3), Amouzegar 2000 (book 5; *non vidit*).

88 Gignoux 1996, 285. The work seems to have been initiated by Ādurfarnbag ī Farroxxādān, a contemporary of al-Ma’mūm (r. 813-833). Its present form dates from the 10th century.

89 In what follows, I followed the account of Shaki 1970, which I have compared with the slightly later translation by Menasce (1973, ch. 123, 194, 365). The two translations often diverge considerably, but my ignorance of Pahlavi does not allow me to decide between them, although discussions I had in March 2018 with scholars at the Department of Ancient Iranian Languages and Cultures, University of Tehran, indicate that Shaki’s translations are generally considered more reliable. Both Shaki and Menasce agree on the basic outlines of the cosmology I describe in the text: cf. Menasce 1968, 195 n. 9: “La doctrine des trois états dans la formation de l’être concret est affirmée à plusieurs reprises dans les textes pehvelis et très clairement dans ceux qui nous occupent ici [i.e. roughly the same texts studied by Shaki]. Elle remonte à coup sûr à une spéculation assez ancienne.” However, Menasce tends to downplay the aspects of pre-existence, emergence, and emanation that reminded Shaki of the doctrines of Anaxagoras and Plotinus.

90 On the importance of primordial heat in the *Book of the Secret of Creation*, and the emergence or manifestation of the wet-and-dry from the hot-and-cold, with the former having pre-existed in the latter in a state of latency, see Travaglia 2001, 78, citing *K. Sīr al-ḥalīqa* p. 111 Weisser. The notions of latency and manifestation (*al-kumūn wa-l-ẓuhūr*)

of the ‘movement of being’ (*bavišn-ravišnīh*), the four elements air, fire, water and earth then emerge, followed by a third stage, designated as the ‘realization of being’ (*bavišn-astišnīh*), which results in the four qualities, combined pairwise,⁹¹ of the hot, wet, dry and cold. Each new stage is merely the emergence of properties already present in the previous stage, a doctrine which Shaki finds reminiscent of Anaxagoras, and the entire process takes place by emanation, which he finds surprisingly akin to the theory of Plotinus. In both cases, however, this scholar prudently refrains from arguing in favor of a direct influence of these Greek thinkers on the author(s) of the *Dēnkart*, claiming that more evidence would be needed to put forth such a hypothesis.⁹² Much more work would indeed be required to confirm or reject Shaki’s intuitions. As far as the historical *possibility* of such an influence on Iranian thought by the doctrines of Anaxagoras and a Neoplatonism akin to that of Plotinus is concerned, I believe it is corroborated by the paleographical considerations I adduce below.

Finally, we have seen above that many of Naẓẓām’s most characteristic doctrines in physics and cosmology can be traced back to the early Shī’ite thinker Hišām ibn al-Ḥakam.⁹³ The latter, in turn, was strongly influenced by Iranian thought in questions of natural science, and shared many of the views of the ‘proponents of nature’.⁹⁴

In short, we seem to be in the presence of a dense network of relations between al-Naẓẓām and Iranian thought in the fields of physics, cosmology, and ontology, and least some elements of which may in turn have been influenced by Greek philosophical thought on these subjects. In this context,

are of fundamental importance for the physical and cosmological thought of al-Naẓẓām; in forthcoming work I attempt to show that Naẓẓām inherited these notions from the thought of Anaxagoras, as transmitted by the *Philosophical History* of Porphyry.

91 On the importance for Naẓẓām of qualities or components appearing in pairs (*Arabic muzdawijāt*), cf. Naẓẓām fr. 51 van Ess = al-Jāhiz, *Ḥayawān* vol. 5, p. 12, 1 Hārūn; van Ess 1991-1997, 3, 341. The concept also appears in the *Kitāb Sirr al-Ḥaliqa* (p. 286, 1; 366, 17 Weisser); cf. Kraus 1942, 147 n. 10; 175 n. 2.

92 Shaki 1970, 291; 300. See above, n. 87. Might Porphyry’s *Philosophical History* account, at least in part, for the echoes of Neoplatonic and Anaxagorean doctrines Shaki thought he perceived in the *Dēnkart*?

93 For instance, the doctrine of latency (*kumūn*; cf. van Ess 1991-1997, vol. 1, 356); the theory that colors, flavors, smells, are bodies; that body is finite in extent, but infinite in divisibility (van Ess, *ibid.*, vol. 5, Text IV 20 = Aš‘arī, *Maqālāt* 59.4-7); the theories of the *tafra*, and of interpenetration (van Ess, 1991-1997, vol. 5, Text IV, 19 = Aš‘arī, *Maqālāt* 60.7-10). Cf. Madelung 2012, and the notes by Gimaret, Monnot and Jolivet to their translation of Šahrastānī’s *Book of Religions and Sects*, vol. 1, 207 n. 38.

94 Van Ess, 1991-1997, vol 1, 416; vol. 2, 40.

the name of Porphyry keeps cropping up. We have seen⁹⁵ that Ibn al-Muqaffa' was accused of translating from the Persian works by the heretics Mani, Ibn Dayṣān, and Marcion: it may, or may not, be a coincidence that, as de Sacy pointed out long ago,⁹⁶ the *Book of the Secret of Creation* cites Porphyry (579, 9-13 ed. Weisser), Dayṣān (92, 3-7), and Marcion (p. 93, 7). Porphyry's lost work *Summikta Zētēmata*⁹⁷ was a source both of Nemesius' *On the Nature of Man*,⁹⁸ large sections of which were integrated into the *Book of the Secret of Creation*, and of Priscianus' *Solutiones ad Chosroem*, which, as we shall see, was probably written at the Persian court of Ḥosrow I.⁹⁹

Much work remains to be done in this field. A close comparative lexical, stylistic and thematic analysis of the *Nabataean Agriculture*, the *Book of the Secrets of Creation*, the *Book of Treasures* and related works, together with a study of the social, economic, cultural, and intellectual conditions in late 8th/early 9th century Mesopotamia where they arose, would no doubt yield important and interesting results, crucial for understanding the Greco-Arabic translation movement as a whole.¹⁰⁰

8 How Might Naẓẓām Have Known about Damascius' Theory of the 'Leap'? Ḥosrow I and the *Collection Philosophique*

As is well known, when the Emperor Justinian closed the pagan schools of the empire in 529, a group of seven Neoplatonists,¹⁰¹ led by Damascius, fled Athens to the court of the Persian king Ḥosrow I Anūšīrwān (r. 531-579), who was famed for his interest in philosophy,¹⁰² and was said 'to have had Greek

95 Above, n. 69.

96 De Sacy 1799, 114.

97 On this work, cf. Smith 1993, fr. 256-273, p. 278-291; Dörrie 1959; Militello 2005.

98 The *Book of the Secret of Creation* contains a modified Arabic version of the first 30 chapters of the *De natura hominis* of Nemesius of Emesa, bishop of Ḥoms around 400 CE; cf. Kraus 1942, 278-280; Chase 2005, 652-653.

99 Scardino 2015, 209 speaks of the presence of "neuplatonischen Ideen, wie sie bei Porphyrios gefunden werden" in the *Nabataean agriculture*, but I have not yet been able to verify this claim.

100 The meticulous studies by Josef van Ess and Patricia Crone, among others, provide indispensable starting points in this regard. Cf. especially van Ess 1991-1997, vol. 1, 416-456.

101 Damascius, Simplicius, Priscian of Lydia, Eulamios of Phrygia, Isidore of Gaza, Hermias and Diogenes of Phoenicia. On this episode, see Hoffmann 1994, 559-563; Watts 2006, 138-142; Hadot 2014.

102 Tardieu 1994, 310-312; Marcotte 2015. Among the treatises dedicated to Ḥosrow I (cf. Tardieu, *ibid.*, 317-318) was the treatise on the logic of Aristotle by Paul the Persian; cf. *supra*, text to n. 79.

texts translated for him into Persian by someone'.¹⁰³ He was said, in particular, 'to have devoured all the works of Aristotle ... and have filled himself with the doctrines of Plato', especially the *Timaeus*, *Phaedo*, *Gorgias*, and *Parmenides*,¹⁰⁴ and to have 'explored the movements of nature'.¹⁰⁵ The seven Neoplatonists probably arrived at Ḥosrow's court at Ctesiphon in 531, shortly after the king's accession to power, but remained there only two years, and then left for an unknown destination. Controversially, Michel Tardieu has proposed that they established themselves in the Mesopotamian town of Ḥarrān, where they founded a Neoplatonic school among the Ṣabians, a star-worshipping community who still remained active, and pagan, until well into the Islamic period.¹⁰⁶

It was during this two-year stay at Ctesiphon that Priscian of Lydia, one of the seven émigré Neoplatonic philosophers, wrote his *Solutiones*, which he addressed to none other than King Ḥosrow.¹⁰⁷ In the Prologue to this work, Priscian cites some thirty authors and works on which he has based his book.¹⁰⁸ We will soon see the crucial importance of this information.

The key manuscript that preserves those of Damascius's metaphysical works that have come down to us, the Marcianus Graecus 246, denoted as A,

103 Agath. *Histories*, 28.2, p. 77, 6-8 Keydell: ὡς λόγων ἐραστὴν καὶ φιλοσοφίας τῆς παρ' ἡμῖν ἐς ἄκρον ἐλθόντα, μεταβεβλημένων αὐτῷ ὑπὸ τοῦ ἐς τὴν Περσίδα φωνῆν τῶν Ἑλληνικῶν συγγραμμάτων. On Ḥosrow's activity as a sponsor of translations from Greek into Middle Persian, cf. Duneau 1966; Maraval 2007, 290 n. 77. Kraus 1934, 14 was cautious, but not dismissive, of this claim: "Es mag richtig sein, das, wie Agathias berichtet, Schriften des Aristoteles und Plato für Chosrau Anōšarvān ins Perisische übersetzt wurden, wenn auch diese Angabe bis jetzt von keiner anderer Seite bestätigt ist."

104 Agath. *Histories*, 28.2, p. 77, 9-15 Keydell: καὶ τοίνυν φασίν, ὅτι δὴ ὄλον τὸν Σταταερίτην καταπιῶν εἶη (...) τῶν τε Πλάτωνος τοῦ Ἀρίστωνος ἀναπέπλησται δογμάτων καὶ οὔτε ὁ Τίμαιος αὐτὸν ἀποδράσειεν ἄν, εἰ καὶ σφόδρα γραμμικῆ θεωρίᾳ πεποίκιλται καὶ τὰς τῆς φύσεως ἀνιχνεύει κινήσεις, οὔτε ὁ Φαίδων οὔτε ὁ Γοργίας, οὐ μὲν οὖν οὐδὲ ἄλλος τις τῶν γλαφυρῶν τε καὶ ἀγκυλωτέρων διαλόγων, ὁποῖος, οἶμαι, ὁ Παρμενίδης.

105 *Ibid.*, 28.1.

106 Tardieu 1991. The literature on Tardieu's proposal is extensive. For a negative appraisal, cf., for instance, van Bladel 2009, 70-79; for a positive one, Hadot 2014.

107 The work survives only in a Latin translation, perhaps made by Johannes Scotus Eriugena, and edited by Bywater in the CAG (Supplementum Aristotelicum vol. 1, pars 2, 1886). See now the translation by Huby *et al.* 2016, and especially the Introduction to this volume by Sorabji (1-10).

108 They include Plato, Aristotle (especially *Met.* and *Somn. Vig.*, but also *GC* and *Cael.*), Theophrastus, Hippocrates, Strabo, Poseidonios, Geminus, Arrian, Arius Didymus, Albinus, Alcinoos, and Alexander of Aphrodisias. Neoplatonist authors mentioned include Ammonius, Porphyry, Iamblichus, Plotinus, and Proclus. Such a wide variety of sources suggests that Priscian had access to ample documentation at the time of writing this work. This, as we shall see, may have been provided by part of the holdings of the library of the Platonic School of Athens.

dates from the end of the ninth century, and is part of what is known as the *Collection philosophique*.¹⁰⁹ This group of manuscripts, written in a script characteristic of the period 850-870, seems to have been part of the library of a Byzantine scholar at around this time.¹¹⁰ According to most paleographers, the Collection can be divided into three groups:¹¹¹

1. A core group of 6 manuscripts written in the same hand,¹¹² which, in addition to the Damascius manuscript Marcianus Graecus 246, preserve works by Plato, several Middle Platonists,¹¹³ and Proclus (*in R.*, *in Ti.*), as well as a manuscript of miscellaneous content, the Palatinus Heidelbergensis gr. 398, to which we shall return.

2. Then there is a group of additional manuscripts,¹¹⁴ closely related to the six core mss. in format, type of ruling, and featuring the same written surface, the same number of lines per page, and same use of diacritical signs, all of

109 There are some thirty manuscripts deriving from A; cf. Westerink and Combès 1986, xc.

110 Westerink and Combès 1986, lxxiii-lxiv; Perria 1991; Marcotte 2014a, 2014b. Rashed 2016, 1001 has suggested that the mss. of the Collection Philosophique were copied for the library of the future Caesar Bardas, founded in the Magnaura at Constantinople, around 850.

111 Westerink and Combès 1986, lxxiv-lxxv.

112 They include the Parisinus gr. 1807 (the second part of a two-volume edition of Plato's Dialogues); Parisinus suppl. gr. 1962 (Maximus of Tyre, Albinus and Alcinous); Laurentianus plut. 80, 9 and Vaticanus gr. 2197 (Proclus, *in R.*), Parisinus suppl. gr. 921 (a palimpsest containing 11 folios from Proclus, *in Ti.*), and the Palatinus Heidelbergensis gr. 398; cf. Marcotte 2014b, 153, with reference to Perria 1991.

113 The presence of these Middle Platonic works led Whittaker 1974 to postulate an earlier date for the constitution of the Collection, but as Goulet 2007 remarks, one cannot rule out that the Neoplatonists may have had an interest in the Middle Platonists, even though they usually disagreed with them.

114 Marcianus gr. 196 (Olympiodorus, Damascius); Marcianus gr. 258 (Alexander of Aphrodisias, *Opuscula*; Zacharias of Chalcedon, *De tempore*); Marc. gr. 226 (Simplicius, *in Ph.* 5-8; *Vita Aristotelis*); Marc. gr. 236 (Phlp., *De aeternitate mundi*; excluded by Allen and Wilson, included by Fonkič and Irigoín; attributed to Scribe V by Perria 1991, 95-105 who concludes (105) that "sul piano grafico non può essere attribuito alla 'collezione', ma solo considerato affine ad essa"; Vat. gr. 2249 (Ps.-Dionysius, *Ecclesiastical History*; Theodoretus, *Graecarum affectionum curatio*); Vat. gr. 1594 (Ptol., *Alm.*, added by Perria 1991, 82-87); Laur. 28, 27 (Maximus the Philosopher, *De actionum auspiciis*, Man., *Apotelesmatica*; added by Perria 1991 88-94). Recent studies (Cataldi Patau 2001; Acerbi and Vuillemin-Diem 2015) have shown that the palimpsest manuscript Par. gr. 2575, containing 31 folios from Simpl., *in Cat.*, and Ammon., *in Int.*, must be added to this list. Finally, Goulet 2007, 55 adds Gregory of Nyssa, *De anima et resurrectione*, Gregory the Wonder-Worker, *Ad Tatianum de anima, Expositio fidei*; Nemesius, *De natura hominis*; Philoponus, *Disputatio de Paschate*, but he does not indicate his reasons, apart from the fact that these works "s'inscrivent nettement dans une tradition philosophique".

which features indicate that they issued from the same scriptorium. They preserve, among others, such Neoplatonic works as Damascius' commentaries on the *Philebus* and the *Phaedo*, the last half of Simplicius' commentary on the *Physics*, and portions of Ammonius' commentary on the *De interpretatione* and Simplicius' commentary on the *Categories*.

3. Finally, there is a group of manuscripts that have been hypothesized as the lost archetypes of extant works.¹¹⁵

It seems appropriate for our present purposes to concentrate on the first group, made up of the core members of the Philosophical Collection, or rather their ancestors, which probably dated from the 6th century CE.¹¹⁶

We have little sure information about the fate of the ancestors of the six core mss. of the Collection prior to the date in the mid-to late 9th century when they were copied at Constantinople. Westerink suggested that the nucleus of the Collection had its origin in Late Antique Alexandria, before being transported to Constantinople, perhaps around the beginning of the 7th century,¹¹⁷ while more recently Rashed has suggested it may have been Stephanus of Alexandria who transported these manuscripts from Alexandria to Constantinople.¹¹⁸ A few years later, Leroux proposed that the manuscripts that constituted the ancestors of the nucleus of the Collection were originally brought from Alexandria to Athens by Damascius himself when he returned to Athens to assume the direction of the Platonic School, perhaps around 515.¹¹⁹ Finally, in a series of important recent articles, Marcotte has followed Westerink in assuming that the *Collection philosophique* derives from a nucleus already constituted in the 6th century.¹²⁰ He has shown convincingly that echoes of several of the works contained in the core mss. of the *Collection philosophique* are to

115 These may have included the first volume of Plato, Strabo, Herodotus, Hermias, *In Phaedr.*, and the lost archetype of Plotinus. One should add the so-called 'Aristotelian collection', consisting of the Vindobonensis phil. gr. 100 (*Arist. Ph., Cael., GC, Mete., Metaph.*; Thphr, *Metaph.*), and the fragmentary Paris Suppl. gr. 1156, V, ff. 13-14 (fragment of Aristotle, *HA* 12-17), which features critical signs and marginal notes in the hand of one of the scribes of the Philosophical Collection; cf. Perria 1991, 98-99.

116 This group corresponds to what Marcotte 2014b, 149 calls the 'Collection philosophique' in the strict sense. As Westerink 1986, lxxiv remarks, the fact that manuscripts derive from the same scriptorium does not mean that they were part of the same Collection.

117 Westerink 1986.

118 Rashed 2016, 1002-1003, an article first published in 2002. For a different view, see now Roueché 2016.

119 Leroux 2008.

120 Marcotte 2007. The very existence of a group of manuscripts sufficiently unified to be called a 'Collection philosophique' has been denied by a number of scholars, particularly Italian; but I believe Marcotte 2014b has successfully refuted their objections.

be found in Priscian's *Solutiones*,¹²¹ which, as we have seen, was probably written at the court of Ḥosrow I in Ctesiphon around 532. This strongly suggests that the ancestor of at least one of the core manuscripts of the Philosophical Collection, the Palatinus Heidelbergensis gr. 398, was present at the court of Ḥosrow I in 531-532.¹²²

In this group of primarily philosophical manuscripts, the Palatinus Heidelbergensis gr. 398 seems to be out of place: far from containing philosophical works, like its *confrères*, it contains geographical, mythographical, paradoxographical, and epistolographical extracts from a series of obscure authors,¹²³ for most of whom it is the sole textual witness. Perhaps most interestingly, the Palatinus contains a *Chrestomathy*, or series of 839 reworked extracts taken from the geographer Strabo.¹²⁴ It is extremely significant that this very rare work, of which only one other incomplete manuscript is known, is mentioned under the same title¹²⁵ in the prologue to Priscian's *Solutiones*.¹²⁶

According to Marcotte, the *Chrestomathy* was put together in an environment permeated by philosophical culture and marked by Platonist concerns.¹²⁷ It contains several divergences from the original text of Strabo: among the texts which the author of the *Chrestomathy* selected for transmission are passages concerning ancient philosophers and their schools.¹²⁸ Whereas in his *Prolegomena*, Strabo (1.4.9) had mentioned the Indians, Ariani, Romans,

121 The work Priscian cites as 'Albinus' Outlines of the Platonic Doctrines from Gaius' lectures', was, as attested by the *pinax*, contained in a now-lost part of the Philosophical Collection manuscript Parisinus Graecus 1962; cf. Whittaker 1974, 325-328. The work Priscian cites as 'Geminus' commentary on Posidonius' work on Meteorology' is elsewhere attested in the now-lost part of the Philosophical Collection ms. Marc. gr. 226. Priscian also cites the obscure Neoplatonist (?) and geographer Marcianus of Heracleia, who is also represented in the ms. Palatinus Heidelbergensis gr. 398; cf. Marcotte 2014a, 183-184.

122 In his Introduction to Huby *et al.* 2016, 4, Sorabji had already envisaged this possibility independently of Marcotte: "Either they [sc. the last seven pagan Neoplatonists] will have brought their library with them ..." Cf. Sorabji 2016, 59.

123 For the full list, cf. Marcotte 2014a, 184.

124 There are 839 extracts in Version A, 198 in Version E., preserved in the ms. Parisinus gr. 571 (13th c.). For probable echoes of Strabo in Damascius' *Isid.*, cf. Marcotte 2014a, 186f.

125 Χρηστομαθείας ἐκ τῆς Στράβωνος Γεωγραφίας in the ms. Palatinus corresponds to *utilibus quae sunt ex Strabonis Geographia* in Priscian; cf. Marcotte 2014a, 179.

126 Priscian, *Solutiones* 42.9 Bywater = p. 14 Huby *et al.* 2016.

127 Marcotte 2014a, 191.

128 Marcotte 2014a, 191; 2014b, 163. Other examples of philosophically-oriented additions in the *Chrestomathy* include the derivation of the term 'greater Greece' from the activities of the Pythagoreans (Str. 6.3.5), and a specification of the nature of the philosophical activity undertaken by Plato and Eudoxus in Egypt (Str. 17.1.29).

and Carthaginians as examples of nations with excellent governments, the Compiler of the *Chrestomathy* modifies this information as follows:

For the Indians, Areians, Romans, and Carthaginians are ruled by the best and well-governed. *This is not the case for the Athenians.*¹²⁹

As Marcotte remarks, this is precisely the kind of remark that might well be expected from a group of intellectuals who had just been driven out of Athens.¹³⁰

Most interestingly, in the extracts from Strabo contained in the Palatinus Heidelbergensis gr. 398, it is Book 11, devoted to the description of the Asian Caucasus, the geography of North-East Syria, and upper Mesopotamia, that contains the most extensive modifications and elaborations as compared to the original text of Strabo. As Marcotte shows, by rearranging, updating, and supplementing the text of Strabo's *Geography*, the compiler of the *Chrestomathy* seems to have wished to produce a kind of tour guide, beginning and ending in the region of Osrhoene, between the Euphrates river to the West and the Aboras to the East, from Edessa in the north to the confluence of the Euphrates and the Aboras to the south.¹³¹ Smack in the middle of the ancient region of Osrhoene is the town of Ḥarrān. Referring to the shorter recension of the *Chrestomathy*,¹³² Marcotte concludes that "only a North Syrian or a Greek settled in the area could conceive of the project of reorganizing the subject-matter of [Strabo's] *Geography* in this way".¹³³ In fact, given the subject-matter of the *Collection philosophique* as a whole, Marcotte is of the opinion that "outside of the circle of Damascius and the Platonists who accompanied him to the [court of the] Persian Chosroes, it is hard to see in what environment these different features could have been united".

129 Chrest. A I μδ, p. 248, 31-33 Radt 2010.

130 Marcotte 2014a, 193.

131 The Aboras river is, of course, the river on which Simplicius mentions he had travelled (*in Cael.*, p. 525, 10-13), the only example of such a personal topographical anecdote in his immense literary output. This passage is a crucial piece of evidence for Tardieu's Ḥarrān hypothesis, cf. Tardieu 1991, 74-75; 103-135.

132 The recension partially preserved in the ms. Parisinus Graecus 571 (= E), cf. Marcotte 2014a, 196-198. Marcotte considers both versions of the *Chrestomathy* to be more or less contemporary.

133 Cf. *ibid.*, 202-203: "[T]he constitution of the ancient organic ensemble constituted by the Collection Philosophique must go back the initiative of a group interested by the Persian world and connected, in one way or another, to Syria and the mid- and upper basin of the Euphrates."

9 Conclusion

Marcotte notes that “it would not be uninteresting to compare with the Syriac and Arabic corpus the detail of the books he (sc. Priscian) enumerates, in order to appreciate the influence which, despite its brevity, the scholars’ stay with Chosroes may have exerted on the technical literatures of Mesopotamia and the peripheral regions”. He adds that “it is not excluded ... that the library of Damascius and Priscianus played a role of mediator between Athens and Baghdad in the transmission of certain texts cited in the Prologue”.¹³⁴

I would like to propose an amplification of Marcotte’s suggestions. If it would be interesting to see whether the technical works mentioned in Priscian’s *Solutiones* had any posterity in Syro-Arabic circles, it would be just as interesting, if not more so, to see whether the philosophical texts of library of the School of Athens, probably transported from Alexandria to Athens by Damascius, then to Ctesiphon, and especially the ancestors of the core group of six manuscripts mentioned above, including the ancestor of the manuscript Marcianus Graecus 246, containing Damascius’ metaphysical works, left any traces in Arabo-Islamic circles.¹³⁵ Independently of the validity of Tardieu’s hypothesis of Ḥarrān as the site of a pagan philosophical school that may have played a role in the transmission of Greek philosophy to Islam, if Marcotte is right—and I find his arguments convincing—then we now know that the ancestor of at least one of the six core manuscripts of the *Collection philosophique* was taken by the last Athenian Neoplatonists to the court of Ḥosrow at Ctesiphon in the years 529-531. If one, then why not all six? And in this case, could we not imagine—given Ḥosrow’s known propensity for having Greek philosophical works translated into Middle Persian—that some form or another of the works of Damascius were similarly translated into Persian? If this were the case, then al-Nazzām, who, as we have seen, was influenced by Persian thought¹³⁶ and was said to have known Persian,¹³⁷ may have had access to some Damascian ideas in Middle Persian translation.

¹³⁴ Marcotte 2015, 9; 11.

¹³⁵ One of the works which Priscian mentions in his Prologue as one of his sources is Proclus’ *monibiblos On Plato’s proofs of the immortality of the soul*. Unknown in Greek, it is preserved only in Arabic. Cf. Chemi 2014.

¹³⁶ See above, nn. 93-94. Nazzām, who penned refutations of the Dahriyya, the Manichaeans and the Bardesanites, was nevertheless suspected—perhaps rightly—of having been contaminated by some of their teachings. Cf. Ibn al-Rēwandī (van Ess 1991-97, Text XXII, 118, vol. 6, 104): “It strikes me that he (sc. Nazzām) has sometimes supported many of those heretical theses (in this case, of the Manichaeans) whose foundations he has destroyed.”

¹³⁷ Van Ess, 1985, 276, citing Jāḥiẓ, *Ḥayawān*, vol. 3, 451.

To summarize: as Richard Sorabji pointed out a generation ago, Damascius and al-Nazzām seem to have arrived at a similar solution to Zeno's paradox of the dichotomy, involving the postulation of a leap (Greek ἄλμα or βῆμα, Arabic *tafra*) that allows objects in motion to disappear from one place and reappear in another, without traversing the (infinite number of) intermediary intervals between any two places. While Sorabji postulated some form of direct influence, it has been objected that Damascius was never translated into Arabic. However, now that Marcotte has established that the ancestors of at least part of the *Collection Philosophique*, to which the manuscript A of Damascius belongs, were present at the court of Ḥosrow I in 531-532, it does not seem inconceivable that some version of some of Damascius' works, or perhaps extracts therefrom, may have been available to al-Nazzām three centuries later, perhaps in a Middle Persian translation.

This reconstruction remains entirely hypothetical, of course, and therefore unsatisfactory. But it is no more so, I would argue, than the current solutions for explaining how Damascius and al-Nazzām came up with an idea, that of the atomic leap, which occurs in them and very seldom, if at all, in any other ancient author, until analogous ideas began to be introduced in the quantum physics of the early twentieth century. As we have seen, the proposals previously suggested include sidestepping the question, positing independent development—that is, coincidence—or else invoking some vague “oral transmission of an eclectic jumble of Hellenistic doctrines”.¹³⁸ The solution I propose goes some way, I submit, towards providing Richard Sorabji's original insight into the kinship of at least one aspect of the philosophies of Damascius and al-Nazzām with a semblance of philological plausibility. And it may conceivably open the door to the study of some of the other interesting similarities between the thought of Damascius and some schools of Islamic thought, particularly Ismā'īlī.¹³⁹

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¹³⁸ Cf. above, n. 49.

¹³⁹ These include such themes as the notion of various hierarchical levels of time, and of the utter ineffability of the First Principle. I hope to return to these questions in future work. In a recent presentation at the University of Marrakech, Dr. J. Esots of the Institute of Ismaili Studies, London, has pointed to similarities between the epistemology of Damascius and that of Mulla Ṣadra (1571-1640).

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