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Aristotle on Melissus on Infinity

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ABSTRACT

This paper claims that the argument that Aristotle seems to ascribe to Melissus in *Physics* III.6 about infinity is different from Melissus' original argument. On scrutiny, it turns out that the Aristotelian version of the argument takes Melissus to suppose that being is unlimited because it is not in contact with anything else. I claim that this is not Melissus' notion of unlimitedness for being, and that the Aristotelian version hinges on a reversal of Melissus' own reasoning.

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1. Introduction

Aristotle's discussion of the Eleatics in *Physics* I.2 and I.3 has been studied with originality and perspicacity in the scholarly literature.¹ This is, however, far from being the case for his remarks on Parmenides and Melissus in *Physics* III.6. In this paper I focus on Aristotle's criticism, in *Physics* III.6, of Melissus for holding a wrong conception of infinity.² Aristotle believes that, when Melissus conceives being to be unlimited in magnitude, he takes 'the unlimited' to be 'that which nothing is outside of'. On a closer reading, it appears that, due to a vagueness in Aristotle's use of the expression 'that which nothing is outside of', it is not clear, as it might at first seem to be, what argument he could have been imputing to Melissus for the conclusion that being is unlimited in the sense of something which nothing is outside. The bulk of my paper is an attempt to figure out what this Aristotelian version of the Melissean argument for infinity could be. It seems that this task can be accomplished by using some help from two sources.

First, in another passage from *Physics* III.8, Aristotle, without explicitly naming any specific address for it, claims to prove the falsity of an infinity argument according to which something is unlimited if it is not in contact with anything else outside it.³ Although scholars have acknowledged the affinity of this criticized argument with Melissus' notion of infinity, they have not explored the issue any further.⁴ I will claim below that the exact affinity here should be with the Melissus as represented by Aristotle in *Physics* III.6.

¹ Among others, I shall content myself with singling out Timothy Clarke [2019].

² See *Physics* III.6, 206b33–207a25.

³ See *Physics* III.8, 208a11–13.

⁴ For references, see section 3.

Second, I think that we can justify the use of this first source for the purpose of clarifying Aristotle's criticism in *Physics* III.6 of Melissus, by appealing to Alexander of Aphrodisias' *Quaestio* 3.12. Alexander discusses the same infinity argument as in *Physics* III.8, and he improves on Aristotle's criticism of it by reading it into what is said about the other infinity argument that Melissus is reported (in *Physics* III.6) to endorse. Alexander does not mention Melissus' name either, but scholars have acknowledged that these *Physics* passages from III.6 and III.8 must be the primary sources of Alexander's *Quaestio* 3.12.⁵ This text can therefore be safely taken as a joint commentary on these passages, and it can be read to shed some light on the exact logic of the infinity argument ascribed to Melissus by *Physics* III.6.

I need, however, to be clear about the limits of my claim in this paper. Neither Aristotle nor Alexander explicitly ascribed to Melissus the infinity argument discussed in *Physics* III.8. Accordingly, my purpose is not to make any historical claim about whether Aristotle or Alexander did attribute this argument to Melissus. Without committing myself to any such historical thesis, I have a more modest purpose: I claim simply that Alexander's *Quaestio* 3.12 provides us with an adequate exegetical framework for analyzing, disambiguating, and eventually reconstructing Aristotle's critical remarks in *Physics* III.6 about a notion of infinity that he thinks Melissus endorsed.

Put together in this way, it becomes clear that the Aristotelian version of Melissus' argument reverses Melissus' original reasoning in some crucial respects and actually attributes to him an idea that he does not endorse about being unlimited. To this end, before I start my discussion of Aristotle, I devote the next two sections to explaining what I understand to be Melissus' argument for monism and infinity.

2. Melissus on Unlimitedness as the Absence of Boundaries

According to Melissus, being ($\tau\acute{o}$ $\acute{\epsilon}\acute{o}\nu$) is both temporally and spatially unlimited. In fragment B1, he argues for the former and infers the latter from it in B2.⁶ Appealing to the prohibition of *ex nihilo* generation in B1, he argues that, if being exists now,⁷ it must have always existed, since coming into existence requires that it be nothing before it came to be. The next fragment B2 argues against destruction of being, and explicitly states its sempiternity:

B2 Since therefore it did not come about, but is, it always was and always will be, and has neither a beginning nor an end, but is unlimited. For if it came about, it would have a beginning (for it would have begun if it had come about at some time) and an end (for it would have come to an end if it had come about at some time). But if it has neither begun nor come to an end, always was and always will be, then it has neither a beginning nor an end. For it is impossible, for what is not entirely, to be forever.⁸

⁵ See notes 22 and 23.

⁶ All of the verbal fragments that have survived from Melissus' work *On Nature or on Being* are cited by Simplicius in his commentaries on Aristotle's *Physics* and *De caelo*.

⁷ The beginning of Melissus' work is the subject of a still ongoing debate. The debate concerns whether it started with a statement of the ineffability of 'nothing' or with a denial of generation on the basis of the ultimate fact that being already exists. For a comprehensive and critical history of this debate see Pulpito [2017]. Pulpito discusses extensively Harriman [2015], which is reprinted in Harriman [2018: 33–51].

⁸ Simplicius, in *Phys.* 109.20–5. All translations of the Melissean fragments are from Laks and Most [2016], unless otherwise stated.

It emerges from B2 that Melissus considers generation as a process of growing that has a beginning and an end in time.⁹ From this assumption about the nature of generation, he seems to deduce that, if being has not undergone a temporally bound process of generation, it would not have an end as it does not have a beginning.¹⁰ If being is not generated, it has neither a temporal beginning nor an end. Being is sempiternal. This notion of generation as a process of growth occurring within temporal bounds also allows Melissus to eliminate spatial beginnings and ends for being and to infer spatial infinity from sempiternity. He seems to think that, if a thing starts to come into being at t_1 and completes it at t_2 , some part of it must be the first to emerge in spatial position and some other part must be the last.¹¹ But if an existent thing is not generated in this way, then it has neither a beginning nor an end in space; therefore, it must be unlimited. Since being has never undergone any such temporal process of growth, it wouldn't have such spatial limits either. Being is unlimited in extension.

Fragment B3, which seems, on the most natural reading, to sum up what is obtained in B2, puts temporal and spatial infinity in an isomorphous relation:

B3 But just as it always is, in the same way it is necessary that it also always be unlimited in magnitude.¹²

The second use of 'always' here, which qualifies the spatial unlimitedness of being, is worth noting for two reasons. First, it provides precision about the real force of the argument in B2. That is, if B3 is really the conclusion of B2, then, by putting emphasis on a temporal aspect of spatial unlimitedness, Melissus seems to be making the point that being has *never* grown into having the magnitude that it has now, which is unlimited.¹³ In other words, with this emphasis on 'always', he states that being has no temporally grown spatial limits. For Melissus, if being does not have any temporally grown spatial limits, it does not have any limits at all.

Second, I think that, in using a temporal qualifier for a spatial feature of being, Melissus must also be understood as emphasizing a further spatial aspect of the spatial unlimitedness of being. After all, his focus in B3 seems to be less on temporality than on spatiality. He must be read as saying that, since it is ungenerated, 'being would *never* have temporally grown limits', meaning that 'it would *nowhere* have any such limits.' I believe that this makes clearer for us what Melissus understands from 'limits'. Limits, for him, are not so much the diachronically emerged beginning and ending points as the boundaries of a thing at any and every point of its magnitude. Consequently, being unlimited is to be understood as not having *any* extremities at

⁹ This is Harriman's [2018: 65–94] formulation and it is confirmed by Aristotle's remarks on this fragment in *Physics* I.3, 186a4–22. Ancient commentators of Aristotle's *Physics* had also seen that this *Physics* passage insinuate such a notion of generation. See Themistius, in *Phys.*, 7.25–8, 11; Simplicius, in *Phys.*, 105.30–110.11; see also Alexander, *On Aristotle's Prior Analytics*, 357, 10–17.

¹⁰ Aristotle reproaches Melissus for committing the fallacy of denying the antecedent in his reasoning here: from 'whatever is generated (p) has a beginning (q)', Melissus would infer 'whatever is not generated does not have any beginning' (see also Aristotle, *SE*, 167b12–20; 181a23–30). Whether logically flawed or not, it is not difficult to see Melissus' reasons for this conclusion. If something comes into being at a certain point in time, then either its process of generation reaches an end at a later time or it continues. But even in the latter case, every 'now' would be a temporal end for the ongoing process of generation.

¹¹ It wouldn't make much difference if the thing, once it came into existence, was to continue growing without end. In such a case, the latest stage of its growth will be its spatial end at that moment.

¹² Simplicius, in *Phys.* 109.31–2.

¹³ Timponara Cardini [1967: 246] understands the second use of 'always' in the same way. See also Sedley [1999: 126–7, 2007: 136n6].

which being can be said to start or end. I submit, then, that when Melissus says, in B3, that being must *always* be unlimited in magnitude, he takes this to imply that it would *never*—that is, *nowhere*—have any boundaries. B3 marks a shift from the conception of limits as the beginning and ending points of a diachronic process of generation to the idea of limits as the boundaries of a thing. In other words, with B3 the emphasis shifts from the temporality of the emergence of limits to their dispersion in space.

I shall now show that fragments B5 and B6 argue for the numerical uniqueness of the unlimited being on the basis of this notion of ‘limits’ as the boundaries of a thing as its spatially dispersed extremities.

3. Melissus’ Argument

From the foregoing considerations, it emerges that, for Melissus, being must be not merely spatially unlimited, but spatially unlimited *in every direction*. There could have existed, after all, two or more lines or plane figures extending infinitely in parallel without touching each other.¹⁴ But Melissus conceives of being as *nowhere* encountering any limits at which it could border on something else or at which it could be bordered by something. Since it never encounters boundaries in any direction, he concludes in B5, and more elaborately in B6, that being must be the only existing thing—in other words, that it is unique:

B6 For if it existed, it would have to be one. For if it were two, they could not be unlimited, but they would have boundaries against each other.¹⁵

I take it that the second part of the fragment contains the argument for the inference stated in the first part. For Melissus, the counterfactual scenario in which there exists a thing other than being would imply that being borders it (and *vice versa*) and this, in turn, would imply that being is limited. Consequently, if being were not one, it would not be unlimited. The argument can be put as follows.

- (1) If there existed something else other than being, they would be in contact so as to limit each other.
- (2) Were it in such contact with something else, being would be limited.

This argument turns on the opposition between being unlimited, on the one hand, and having boundaries against some other thing, on the other. Beyond this, however, and beyond its conclusion to the uniqueness of being, B6 is also crucial in making clear Melissus’ assumption about the relation of entailment between unlimitedness and *not* having boundaries with something else. It seems, from the contrapositive of (2) above, that for Melissus the former entails the latter. This point is important for my discussion, below, of Aristotle.

To this point, I want to add that it is apparent from B2 that Melissus assumes that having boundaries would imply generation. According to him, the fact that being has no contact with something else must ultimately follow from its being ungenerated.

All of these put together, the line of reasoning stretching from B1 to B6 can be expressed as follows (I will call this argument ‘M_M’).

¹⁴ See also Harriman [2018: 103].

¹⁵ Simplicius, *in Cael.*, 557.16–17. I modified the Laks and Most translation in the last clause.

- (3) Since being exists, it is ungenerated. (From B1)
- (4) Being ungenerated, it has no boundaries: that is, it is unlimited. (From B2)
- (5) Being unlimited implies that *nowhere* does being have borders against something else; in other words, *nowhere* does it does border anything else, nor it is bordered by something. (From B3)
- (6) Having no boundaries and not being bounded by anything else, being must be unique: that is, it must be the only thing that exists. (From 6)
- (7) Consequently, if being exists, it has to be unique.

(5) plays the crucial role in Melissus' argument for monism and it has a curious affinity with one of the five *prima facie* convincing arguments for the existence of something infinite that Aristotle lines up in *Physics* III.4 for further consideration. According to the fourth of these arguments [203b20–2],

what is limited always reaches its limit in relation to something, so that there can be no [ultimate] limit, if one thing must always reach its limit in relation to another.¹⁶

In slightly more abridged form, Simplicius refers to this as the argument that 'there is something outside everything that is limited, at which it reaches a limit' (παντὸς πεπερασμένου τι εἶναι ἔξω, πρὸς ὃ περαίνει).¹⁷ I will call this argument 'Π', and I will call 'being π -limited' something's being limited by reaching its limits in relation to something else. It is worth noting that, despite its central role in M_M , Aristotle never addresses anything like (5) in any of his comments on Melissus, nor does he trace the origins of Π to any Eleatic source whatsoever.¹⁸ In *Physics* III.8 (208a10–14), Aristotle returns to Π and criticizes it as the principal premise of a pluralist argument for the existence of an actual infinite thing. We learn from this passage that Aristotle in fact conceives Π as the (false) assumption that 'being limited' is necessarily 'being π -limited'. This is false, according to Aristotle, because he thinks that, although all things that are π -limited are limited, not all things that are limited are π -limited.

Melissus would certainly not appeal to Π in any pluralistic form. Nonetheless, the affinity of language and reasoning between the core idea as captured in Π and Melissus' fragments B5 and B6 cannot be mistaken:

B5 εἰ μὴ ἓν εἴη, περανεῖ πρὸς ἄλλο. / If it were not one, it will have a limit against another.¹⁹

B6 εἰ γὰρ δύο εἴη ... ἔχοι ἄν πείρατα πρὸς ἄλληλα / For if it were two ... they would have boundaries against each other.

¹⁶ Reeve's [2018] translation. The argument is that if everything limited is limited by some other limited thing outside itself, then this latter, being limited itself, should also be limited in the same way; and this should continue in this way without end; therefore, something actually infinite exists. See Simplicius' paraphrase in *Phys.*, 466.31–7.

¹⁷ in *Phys.*, 466.31–2; my translation. For similar formulations, see Alexander *apud* Simplicium, in *Phys.*, 467.1–4, Themistius, in *Phys.*, 81.28–30, and Philoponus, in *Phys.*, 405.7–9.

¹⁸ Except, perhaps, for *GC* I.8, 325a15–16, where Aristotle reports that *some* thinkers assert that 'the all' is unlimited since 'its limit would limit it against the void'. Kirk, Raven, and Schofield [1983: 395] think that this idea is probably 'not genuine Melissus, but something concocted by Aristotle from Melissan materials'. Brémond [2017: 489n56] also thinks that there is no justification to see an authentic Melissean fragment here. See Barnes [1982: 201], too, for several reasons to deny Melissean authenticity to these lines. I am closer to the KRS interpretation because this *GC* passage is in general agreement with Aristotle's reading of Melissus (see notes 20 and, especially, 41).

¹⁹ Simplicius, in *Phys.*, 110.5–6.

Furley [1969: 93], Cherniss [1983: 21n80], and Huffman [2005: 545] saw this affinity with Melissus' thinking.²⁰ Now, although Aristotle does not explicitly relate Π to Eleaticism, or to Melissus in particular, it is a fact, as I explain below, that Alexander of Aphrodisias (without himself mentioning Melissus' name either) also seems confident about a connection between Π and the notion of infinity that is ascribed to Melissus in *Physics* III.6. From his perspective, Melissus' notion of infinity as conceived of by Aristotle must be, after all, explicable on the basis of Π . I argue below that what emerges from this perspective as the Aristotelian picture of Melissus does not correspond to what we can gather from the fragments, and that it diverges from Melissus' own reasoning in some important respects.

4. Some Intertextual Fine-Tuning

Aristotle cites Π in *Physics* III.4, and then later, in *Physics* III.8, refutes it on the ground that it falsely identifies 'being a limited thing' ($\tau\acute{o}$ πεπερασμένον) with 'being π -limited' ($\pi\rho\acute{o}\varsigma$ $\tau\iota$ περαίνεiv).²¹ In *Quaestio* 3.12, which is believed to derive from his lost commentary on the *Physics*, Alexander of Aphrodisias addresses Π , and he improves on Aristotle's criticism of it by reading it jointly with those lines from *Physics* III.6 where Aristotle attacks a particular notion of infinity for which he only mentions Melissus' name as representative. Alexander obviously situates the relevant parts in *Physics* III.6 and III.8 in a continuous line of reasoning. Consequently, I believe that there are some reasonable grounds on which to speculate that we can help ourselves to Alexander's *Quaestio* 3.12 to clarify Aristotle's criticism of Melissus in *Physics* III.6.

As I said above, scholars have recognized that both of these relevant passages from *Physics* III.6 and III.8 must be the primary sources of Alexander in this *Quaestio*. The connection of this text to Π as in *Physics* III.8 must be obvious to any reader of it.²² Its relation to the Melissus passage in *Physics* III.6 might be less noticeable, but this is only because the latter provides the background debate that frames Alexander's discussion of Π .²³ The central question in both texts is the same: is the totality of everything to be deemed infinite? This is the very idea for which Aristotle criticizes Melissus in *Physics* III.6, as will become clear when I cite the text at length below. Like Aristotle, Alexander also answers in the negative to this question, and he does this by using Aristotle's criticism of Π .²⁴

Consequently, what Alexander does in *Quaestio* 3.12 is to reject the very notion of infinity that is ascribed by Aristotle to Melissus in *Physics* III.6 on the basis of Aristotle's rejection of Π in *Physics* III.8. Then we can, I believe, reasonably expect this

²⁰ However, they all relate it to GC I.8, 325a15–16 (see note 18 above) instead of B5 and B6. I cannot understand why they choose to relate it to a passage whose connection with Melissus is dubious when there is this obvious similarity with B5 and B6. Some are rather inclined to ascribe it eventually to Archytas of Tarentum, who is younger than Melissus (see, e.g., Cherniss [1983: 21]). Alexander is reported to say (*apud* Simplicium, in *Phys.*, 467.1–3) that this argument was being used by the Epicureans to prove the infinity of the universe. Cf. Epicurus, *ad Hdt* 14.41, Lucretius, *de Rerum* 2.958–67, and Cicero, *de Nat. Deorum*, 2.103.

²¹ See *Physics* III.4, 203b20–2 and III.8, 208a11–14, respectively.

²² See, nonetheless, Todd [1984: 186] and Sharples [1994: 139n318].

²³ Todd [1984: 192] identifies the *Physics* III.6 passage as a source of Alexander's *Quaestio* 3.12 (his more precise reference is to the lines 207a7–12). Todd refers [192n37] this idea back to Bruns' *Interpretationes variae* [Kiel 1893]. The connection of Alexander's text to the *Physics* III.6 passage is recognized by Sorabji [1988: 139n65] and Sharples [1994: 139n322], too. Sharples also cites Bruns.

²⁴ Besides this central parallel, there are some other textual parallels between the two texts: *Quaestio* 3.12, 102, 6–20 is in close parallel with *Physics* III.6, 206b33–207a25.

Alexandrian text to help us to pinpoint what, exactly, is wrong, according to Aristotle, with the Melissean conception of infinity as he discusses it in *Physics* III.6.

I think that these considerations underpin not only the relevance of Alexander's *Quaestio* 3.12 but also that of II in reconstructing Aristotle's understanding of Melissus' argument for infinity. This claim about the relevance of II receives further support from the remarkable fact that all the commentators of the *Physics* III.8 passage in late antiquity seem to see in Aristotle's criticism of II a problem for some monism of a particularly Eleatic stripe.²⁵

I submit, therefore, that, if we take Alexander into account, we can have a fuller and clearer picture of what might be an Aristotelian criticism of the Melissean connection between infinity and monism as it culminates in B5 and B6. In light of these considerations, in what follows, I first analyse Aristotle's understanding of Melissus as in *Physics* III.6, and then I suggest a reconstruction of it on the basis of Alexander's *Quaestio* 3.12.

5. Aristotle on Melissus in *Physics* III.6

Aristotle takes the core Eleatic thesis that 'being is one' to mean that 'all things are one' (*Physics* I.2, 185a22) or as 'the beings to be one' (*Physics* I.3, 186a5),²⁶ and he understands this as an elliptic way of saying that 'all things are one being.' Aristotle immediately captures a need for clarification here because, as it is, this sounds like a thesis about both the number and the unity of being.²⁷ The problem for the Eleatics is that both unity and being are said in many ways.²⁸ The Eleatic thesis can mean that all things are of one kind of being (namely, that all are substance or quality or quantity, etc.), or that they are all identical to some one single being (namely, one individual substance or quality or quantity, etc.).²⁹ The claim about 'oneness' could equally be understood as a claim about unity, yet unity is also said in many ways: things have unity either by being continuous, by being indivisible, or by having the same account (*Physics* I.2, 185b5–25). Aristotle claims to prove that, in all of these senses, the Eleatic thesis fails. Despite its philosophical frailties, however, Aristotle is confident that the Eleatic thesis, in both its Parmenidean and Melissean versions, is a thesis with a bearing on both the unity and the number of being at the same time. He thinks that, regarding the unity of being, Parmenides speaks better than Melissus, since Parmenides conceives being as limited, saying that it is 'equal in all directions from the middle' (*Physics* III.6, 207a14–20),³⁰ whereas Melissus seeks to combine what cannot be combined, because his Eleatism amounts to conceiving of the unity of being as a unity regarding the matter.³¹ But matter, being without form, and hence unlimited, cannot have such a unity. The substance of Aristotle's criticism in *Physics* III.6 is as follows [206b33–207a25]:

²⁵ Cf. Simplicius, in *Phys.*, 516.15–16, where he *verbatim* reproduces Themistius, in *Phys.*, 99.25–6. Cf. also Philoponus, in *Phys.*, 494.9–11.

²⁶ Aristotle sometimes takes it to be a claim about the cosmos: cf. *Metaphysics* I.5, 986b10–11 and *Physics* I.3, 186a13–16.

²⁷ This is the centre of the discussion about Parmenides and Melissus in *Physics* I.2 and I.3.

²⁸ Cf. Alexander, *On Aristotle's Topics*, 119, 16–19.

²⁹ *Physics* I.2, 185a20–32. In the first case, Eleatism would be a kind monism, whereas in the second case it would also be a numerical monism.

³⁰ The Parmenides fragment is DK28 B8.44.

³¹ Cf. *Metaphysics* I.5, 986b17–28.

the unlimited is the contrary of what people say it is. For it is not what nothing is outside of (οὐ μὴδὲν ἔξω), but rather what something is always outside of, that is unlimited. ... On the other hand, what has nothing outside is complete and whole. For this is how we define what is whole, namely, as that from which nothing is absent (οὐ μὴδὲν ἄπεισιν)—for example, a whole human being or a whole box. And just as with the particular case, so too with what is whole in the strict sense: it is what nothing is outside of. But what something is absent from and outside of is not an ‘all’, whatever may be absent. Whole and complete are either entirely the same or very close in nature. Nothing is complete that has no end, and the end is a limit. That is why Parmenides must be thought to have spoken better than Melissus. For Melissus says that the unlimited is a whole, Parmenides that the whole is limited, ‘equal in all directions from the middle’. ... [I]t is from *this* they get the dignity that they ascribe to the unlimited: that it encompasses all things and contains all within itself, because it has some similarity to the whole. In fact, though, the unlimited is the matter of the completeness that belongs to magnitude; is what is potentially but not actually a whole, being divisible by reduction and by its inverse, namely, addition; is a whole and limited not intrinsically but with regard to something else; and does not encompass but, insofar as it is unlimited, is encompassed.³²

According to this passage, Melissus’ mistake about the unlimited is twofold.

- (a) He has a false conception of the unlimited. Taking the unlimited to be ‘that which nothing is outside of’, Melissus wrongly predicates of the unlimited what properly belongs to the whole. The grounds on which Aristotle authorizes himself to ascribe this notion of infinity to Melissus is not explicitly elaborated in this passage, but he is apparently appealing to his own construal of the core Eleatic thesis as ‘Being is all’: being is ‘that from which nothing is absent’; it encompasses all.³³ This, according to Aristotle, amounts to saying that being is whole and complete, and that it is actually limited because being whole and complete are the features of what is limited. Consequently, for Aristotle, although Melissus explicitly refers to ‘the unlimited,’ in fact what he really has in mind implies ‘the whole,’ and this shows that he understands ‘the whole’ in a confused way, as I will claim below.³⁴
- (b) Melissus’ notion is not adequate for what is actually unlimited about being. What is unlimited about being can only be its matter, but what he takes to be the definition of ‘unlimited’ belongs more properly to what is limited by having a form. Nonetheless, this mistake is not completely unreasonable, because matter has a similarity to the whole: although it is not whole in itself, matter is potentially a whole, and is limited only as being contained and encompassed by what is complete by having a form. Consequently, Melissus has not only an inadequate conception of the unlimited; he also attributes it to the wrong thing.

The first aspect of Aristotle’s criticism is pertinent for my purposes here, and the first thing to notice about this passage is a vagueness in his use of the phrase ‘what

³² Reeve’s [2018] translation. One might want to know if this interval of lines is meant to be a reconstruction by Aristotle of Melissus’ thought. It seems natural to me to read these lines as one continuous piece of reasoning. Simplicius also takes 206b33–207a18 altogether as the lemma for his commentary (*in Phys.*, 500.2–502.12). Aristotle might have other philosophers as well in his mind, but Melissus’ name is the only one that he cites.

³³ The last clause of B2 must also be relevant for Aristotle here: ‘For it is impossible, for what is not entirely, to be forever.’

³⁴ For the relevant senses of the terms ‘complete’, ‘limit’, ‘whole’, and their mutual connections in Aristotle, see *Metaphysics* V, 1021b12–1022a3, 1022a4–13, and 1023b26–36, respectively.

nothing is outside of' (οὐ μὴδὲν ἔξω). From his use of this term, it is not clear how it can ever serve as a definition for being unlimited. Aristotle uses this term in equivalence with being 'that from which nothing is absent' (οὐ μὴδὲν ἄπεισιν). Something 'of which nothing is outside' in this sense is a thing, nothing of which is outside of itself; it is something that lacks nothing of itself: it is whole and complete. Aristotle's examples are clear: particular individual things, such as an individual human being or an individual box, are wholes in this sense, since nothing of them is outside of them: they have themselves all together. The 'totality of everything' is just a special case of such wholeness, on the largest scale possible. It is, in other words, obvious from Aristotle's own examples that something can be οὐ μὴδὲν ἔξω in this sense, yet still be limited. If this is also how Melissus conceives of the totality of everything, it is unclear what inference Aristotle could take Melissus to be making from its being οὐ μὴδὲν ἔξω to its being unlimited. What could be the reasoning, for Aristotle, that leads Melissus to infer, from being 'that from which nothing is absent' like a box, to unlimitedness, when it comes to the totality of everything?

If we are not going to reproach Aristotle (and I do not think that we should) for being deliberately ambiguous in his use of the phrase οὐ μὴδὲν ἔξω, we first need to disambiguate this term, and then to see what may be the Aristotelian version of such an infinity argument that can reasonably be ascribed to Melissus. It seems to me that this phrase can have two principal senses, as follows.

(A) 'that which nothing is absent from'. I will call this the α sense from ἄπεισιν.

The α sense can also have two meanings:

α_1 = that from which nothing is absent. Something that is α in this sense would be everything —in other words, the all.

α_2 = that from which nothing of it is absent. Something that is α in this sense would be a whole and complete. An individual human being or a box would be α in this sense.

(B) 'that outside of which there is nothing *else*'. I will call this the ϵ sense from ἕτερον.

Now, some of the relations between these senses must be as follows: α_2 would follow from α_1 but α_1 wouldn't follow from α_2 . A human being, for instance, is α_2 but not α_1 , whereas, if something is 'all,' it would also be whole and complete. On the other hand, ϵ follows from α_1 but does not follow from α_2 . A human being is not ϵ , although she is α_2 , whereas there should be nothing *else* outside the totality of everything.

Aristotle's criticism of Melissus in *Physics* III.6 consists in saying that he does not see the implications of α , namely, that his conception of being as 'the all' (α_1) implies unity (α_2) and that unity implies 'limits'. Once again, what is not clear in this criticism is how Melissus (or anybody) could ever be said to derive unlimitedness from α . I think that this inference is possible, within this context, only if one moves directly from α_1 to ϵ and, failing to see that α_1 *also* implies α_2 , takes ϵ to imply unlimitedness. Something that is ϵ can be understandably (if not correctly) conceived to be unlimited if there is no other *different* thing (τὸ ἕτερον) outside it to limit it. This is the relevant sense in II, but it is remarkably imperceptible in the *Physics* III.6 passage above. In this sense, οὐ μὴδὲν ἔξω could be understood as there being no other thing outside something to π -limit it. Below, I want to show briefly that such

an argument ascribable to Melissus is available in the Aristotelian tradition though not explicitly elaborated by Aristotle himself.

6. Aristotle on Melissus through Alexander

If my picture of Aristotle's treatment of Melissus in *Physics* III.6 is accurate, then some further elucidation is required to complete it. This can be done by exploring the way in which Alexander of Aphrodisias integrates Aristotle's criticism of Π with what Aristotle says in *Physics* III.6 about the false notion of infinity that Melissus is said to hold. According to this fuller version of the Aristotelian criticism of Melissus, the major problem in the latter's argument (in my reconstruction) would be his endorsement of Π , which is false. I will claim that, in this Aristotelian version, the Melissean argument (M_A , from now on) differs from Melissus' own argument ($M_M = 3-7$ above) in some crucial respects, and hence is not supported by the fragments.

In *Quaestio* 3.12, Alexander sets out to refute two arguments for the infinity of being, one of which is Π ³⁵: 'everything that is limited is limited by being up against something' ($\pi\acute{\alpha}\nu$ τὸ πεπερασμένον πέρατι περαίνειν—101.15). It is, however, worth noting again that Aristotle himself conceives of Π as a statement of identity between 'being limited' and 'being limited by being up against something', to use his own terms in *Physics* III.4. In *Physics* III.8, he replaces the latter term with 'being in contact with something' and says [208a11–13],

making contact and being limited are distinct. The former is a relation, that is, it is making contact with something, since everything that makes contact makes contact with something, and is a coincident of some limited things. But what is limited is not a relation.

Apparently, Aristotle conceives of Π as a biconditional:

$\Pi =$ (If something is limited, then it is limited by being up against something else) and (if it is limited by being up against something else, then it is limited).

Aristotle thinks that identifying 'being limited' with 'being limited by being up against something' is making a 'category mistake' because the latter is a relation whereas the former is not, and, as it emerges more clearly from Alexander (and later commentators), the real target of Aristotle's objection to Π is the first conjunct of this biconditional since he apparently thinks that the second is true.

Alexander also confines his treatment of Π to the first conjunct, and takes the truth of the second conjunct for granted as it is strongly commonsensical. But it is important for my purposes to see the fuller version of Π in Aristotle, because I will claim below that Melissus endorses only the second conjunct, not the first.

Now, Alexander's refutation of Π has two steps that, considered together, would help us to conceive of an explanation for how Melissus could have ever derived (as assumed in *Physics* III.6) unlimitedness from the α sense of 'what nothing is outside of'.³⁶ In 104.20–105.03, Alexander states outright his reason to deny Π :

If the being limited of what is limited consisted in being considered [as] up against something else, then our opponents would have a point when they claim that outside every limited thing there has to be something up against which it is seen to be limited—if it is in this that being, for

³⁵ The other argument is the one traditionally attributed to Archytas (DK47 A24; cf. Huffman [2005: 540–50]).

³⁶ I give the following two texts in reverse order to maintain ease of reasoning.

what is limited, consists. ... [I]f it is in its own nature that what is limited possesses [the property of] being limited, but what is limited against something is like this through its relation to something else, [the property of] being limited will not consist in being limited against something outside it.³⁷

The substance of Alexander's refutation consists in claiming that defining limitedness by being π -limited is false in so far as the former does not imply the latter. According to him, being limited is to be defined by being limited 'in its own nature'—that is, by being complete. However, something's being complete by being confined within limits 'by its own nature' does not imply anything about its being π -limited *even if* this thing happens to be so limited. In short, Alexander, following Aristotle, asserts that being π -limited is not a necessary condition for being a limited thing as such. Therefore, Π is wrong.

If Π is wrong, then it must be clear that not everything that is limited is limited by being π -limited. In the other step of his argument, Alexander contends that 'the totality' ($\tau\acute{o}$ $\acute{o}\lambda\omicron\nu$ or $\tau\acute{o}$ $\pi\acute{\alpha}\nu$) is just such a thing (*Quaestio* 3.12, 102.16–23; Sharples's [1994] translation):

[A] whole and a totality are the same (for each of them is defined by none of its parts being absent), something which is like this will be limited, if what is limited is that of which no part is absent. And the totality is like this; for [there won't be]³⁸ anything else outside [it] that limits [it] and is limited [by it]... For that, outside which there is something that is, will no longer be totality and the whole. There is however something outside what is limited [by being] up against something else ...³⁹

The last clause of this paragraph shows that Alexander joins Aristotle in considering the second conjunct of Π to be true: being π -limited implies being limited. But he goes further than Aristotle, employing this truth to prove the falsity of the first conjunct, so as to refute the thesis of those who appeal to Π to argue for the unlimitedness of 'the totality of everything'. His reasoning in this passage is as follows.

- (8) If something is π -limited, then there is something else outside to limit it.
- (9) There is nothing outside totality (in both the α_1 and ϵ senses) to limit it.
- (10) Therefore, totality is not π -limited.
- (11) But, from the fact that totality is not π -limited, it does not follow that it is unlimited, because totality is limited (it is α_2 by being α_1).

Alexander's point in *Quaestio* 3.12 is to show that the mistake of the defenders of infinity is to conclude unlimitedness from (10). This step can be taken only if one assumes that not-being- π -limited implies being unlimited. This assumption, however, would be wrong because being π -limited is not a necessary condition for being a limited thing as such.

Now we have all of the elements for a fuller and clearer picture of Aristotle's criticism of Melissus in *Physics* III.6. According to this Aristotelian criticism, when Melissus conceives of being as the totality of everything, he would *rightly* appreciate that, having nothing absent from it (that is, being α_1), there is nothing outside it (that is, it is ϵ) to π -limit it. However, from this, he would *unwarrantedly* conclude that

³⁷ Sharples's [1994] translation.

³⁸ My brackets.

³⁹ For a further examination of this passage, see Sorabji [1988: 136–7].

being is unlimited. Consequently, the problem with Melissus is that he does not see that his reasoning actually implies both unity (so as not to have anything missing = α_2 , from α_1) and unlimitedness for being at the same time, which is impossible. This is how Melissus can *wrongly* say that the unlimited is that which nothing is outside of. He would not have committed this mistake, had he seen that α_1 implies α_2 or had he not endorsed the first conjunct of Π (that is, anything that is limited is π -limited).

From all of this, the following argument (M_A) can be put together for Melissus as Aristotle's target in *Physics* III.6.

- (12) Being is all: it is the totality of everything.
- (13) Being the totality of everything in such a way as to have nothing absent from it (= α_1), there is nothing *else* outside being (= ε).
- (14) [Since there is nothing *else* outside being, it must be the only existing thing: it must be unique.]⁴⁰
- (15) Since there is nothing *else* outside being, there is nothing *else* outside it π -limiting it.
- (16) If there is nothing *else* outside it π -limiting it, then being is not π -limited.
- (17) Anything that is not π -limited is unlimited.
- (18) Therefore, being is unlimited.

This is my reconstruction of the argument that Aristotle seems to ascribe to Melissus in *Physics* III.6.

7. Concluding Remarks

I want to conclude by pointing out some crucial differences between M_M and M_A .

The major difference to which my overall analysis of the two arguments so far calls attention is that, although both arguments deny π -limitedness to being, they do this on different bases. This denial is expressed in (5) in M_M , and in (15) and (16) in M_A . The source of difference between the bases on which they deny this feature to being lies in the fact that Melissus does not endorse Π , because he does not need to do so. More precisely, he does not endorse (17). (5) in M_M is the equivalent of the second conjunct of Π , not the first: Melissus assumes that being has *never* grown into having any limits since it is ungenerated, and it is from its having no such limits that he concludes that being is never up against anything to π -limit it. In other words, he infers not-being- π -limited from being unlimited, not the other way around as suggested by M_A .⁴¹ Melissus does not need to make the latter inference, because the negation of generation is just sufficient for him to conclude unlimitedness for being.

⁴⁰ Although Aristotle does not make any explicit point about Melissus' monism in *Physics* III.6, (14) is a natural implication of M_A .

⁴¹ GC I.8, 325a15–16 also reflects the same divergence from Melissus' original reasoning: some thinkers, says Aristotle, assert that 'the all' must be unlimited because 'its limit would limit it against the void' (τὸ γὰρ πέρασ περιβαίνει ἄν πρὸς τὸ κενόν). Accordingly, if 'the all' were limited, it would be π -limited by the void. This reflects the same reasoning as in M_A . Barnes [1982: 201] also thinks that this passage reverses Melissus' original reasoning and makes unlimitedness deduced from uniqueness. This is why I agree with Barnes and KRS that the idea expressed in this GC passage is not genuine Melissus but is instead something gathered by Aristotle from Melissean material (see note 16). It reflects how Aristotle understands the Melissean argument, not a genuine Melissean pronouncement.

Seen in this way, it becomes interesting to observe that M_A reverses the order of reasoning in M_M in some other crucial respects. (12) in M_A can be understood either as the claim that ‘everything’ is to be conceived as a single thing when counted by the count-unit ‘being’, or as the claim that being is all that there is. On both readings, the conclusion would be a monism. However, these need not be perceived as alternative readings. The latter can very well be a conclusion from the former; or they can even be read as equivalent claims. Read in this fashion, it is easier to see that M_A turns decisively on a one-many opposition,⁴² whereas M_M does not. In M_A , the negation of anything other than being—namely, a plurality—is the first thing derived from being α_1 in (13). From this negation of plurality, at least three other differences between the two arguments follow. (a) In M_A , being’s not-being- π -limited follows from there being nothing else other than being, whereas, in M_M , that there is nothing else other than being is derived from being’s not-being- π -limited [from (5) to (6)]. (b) M_A establishes unlimitedness on a preliminary negation of all plurality, whereas in M_M the negation of plurality follows from the unlimitedness of being [in (6) again]. And (c) according to M_A , not-being- π -limited is the consequence of the uniqueness of being, whereas, in M_M , the uniqueness of being is the consequence of its unlimitedness and its not-being- π -limited [from (4) and (5) to (6)].

That Aristotle is prone to reverse Melissus’ reasoning in such ways finds confirmation in Simplicius. According to him, when Aristotle says that Melissus’ argument is crude and involves no difficulty, since one absurdity granted to him lets the others follow,⁴³ he means, for instance, that, once Melissus is allowed to affirm the uniqueness of being, he will immediately be able to claim that ‘[being] must also be unlimited, for if it has a limit it will have both the limit and the limited’:⁴⁴ that is, it will be many. This reasoning has the same structure as M_A .⁴⁵

Besides its implications for the adequacy of Aristotle’s representation of Melissus, this reversal also has philosophical significance regarding the modality of the non-existence of plurality in Melissus’ thought. In M_A , plurality would be negated on its opposition to the uniqueness of being—that is, on the *impossibility* of there being anything else other than and beyond being, if it is one. In M_M , however, the negation of plurality would be *contingent* on being’s unlimitedness in magnitude, as Philoponus captures very neatly (*in Phys.*, 51.10–13; Osborne’s [2006] translation):⁴⁶

For if it is infinite, it is clear that it would also be one; for what is infinite takes up all the room, and if so it will not allow there to be anything else, since if it did it would not be infinite.

Lastly, it is important to underline that, according to M_A , Melissus’ road to the false conclusion (18) is paved in two steps. First of all, he fails to see that his conception of being as the totality of everything implies unity (in other words, that it is α_2). Failing to see this, he concludes (at least in my reconstruction), in a second step, unlimitedness for being from its being ϵ , by endorsing (17), which, Aristotle thinks, is false.

⁴² The one-many opposition is also, remarkably, at the centre of Aristotle’s discussion of the Eleatics in *Physics* 1.2 and 1.3.

⁴³ See *Physics* 1.2 185a10–11.

⁴⁴ Simplicius, *in Phys.*, 52.19–20 (my translation).

⁴⁵ Note that Simplicius himself understands Melissus as deducing uniqueness from unlimitedness: cf. *in Phys.*, 110.5–6 and his paraphrase at 103.28–30.

⁴⁶ I think that Sedley’s point [2007: 136n6] about the relation between ungeneratedness and having no limits also goes in the same direction.

It is important to distinguish clearly between these two steps in M_A because, from the first of these mistakes, we see that, for Aristotle, Melissus does not actually have any working notion of unity for being.⁴⁷ On the basis of M_A , Aristotle reproaches Melissus for failing to conceive of being as having a unity. I think that Melissus' original reasoning in M_M eventually confirms Aristotle. There is nothing in M_M that implies unity in the α_2 sense. The elimination of all limits from being as a result of its ungeneratedness eliminates all notions of wholeness and completeness from Melissus' conception of being. But, if this is true, we have to revisit a widespread scholarly convention about his monism, according to which he would think of being as having a unity.⁴⁸

All of this should be enough for us to reconsider Aristotle's treatment of Melissus in *Physics* III.6.⁴⁹

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⁴⁷ It is true that Aristotle talks, particularly in *Physics* I.2 and I.3, about the core Eleatic thesis as a thesis about the unity (and number) of being, but it is clear from his criticisms there that he means this, in the case of Melissus, to be an implication of his position, not something that Melissus himself considered. In other words, Aristotle definitely thinks that Melissus' notion of being *implies* unity, but I claim that he does not think that Melissus works with it.

⁴⁸ If this claim is acceptable, then I believe that we also have to revisit Melissus' notion of 'homogeneity' as in fr. B7. I am inclined to think that the 'homogeneity' of being in Melissus is to be understood as an issue of identity, not of unity. For an insightful interpretation in this direction, see Brémond [2019].

⁴⁹ I am truly grateful to the *AJP* editor Stephen Hetherington and the journal's referees for their constructive comments.

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