

Iamblichus,
De communi mathematica scientia xxvii

Commentary by DSH & MRJ 2013iv30

<chapter heading: commentary>

7.10-13: The scholiast on F wrote "ἀριστοτελικῶς" in the margin under the chapter number κζ, and it is more or less obvious that the content of the entire chapter derives from Aristotle. *DCM* xxvii divides into four roughly equal sections. The first part (84.21-86.2) contains methodological remarks about the mathematical sciences in a binding inter-textual relationship with *Parts of Animals* I 1.639a1-b6. The second part (86.2-22) contains this methodological discussion with comments on the variable degrees of precision to be expected from different kinds of demonstration, e.g. from orators or mathematicians. The third part (86.23-87.16) contains a more detailed discussion of the criteria of mathematical demonstration. The fourth and final part (87.22-88.11) contains a remark the extent to which non-mathematical sciences can be understood to have definite principles that make them approximate the stringent criteria required of mathematical demonstrations.

<xxvii 84.21-86.2: commentary>

84.21-86.2 attribution and voice: Iamblichus opens the chapter immediately with an excerpt from his source, just as he does in *Protr.* XV, where he immediately launches into a quotation of Plato, *Republic* VII.

The opening of *De Partibus Animalium* I 1 corresponds literally with Iamblichus' text over such wide stretches that co-incidence is impossible. Since Aristotle cannot have derived his text from Iamblichus, then either: Iamblichus must have invented his text on the basis of *De Partibus Animalium* I (with modifications), or else both of these texts were invented on the basis of a lost text earlier to both, such as Aristotle's *Protrepticus*. This second possibility seems to us to be the more likely hypothesis, for the following six reasons.

First, Proclus attributes the arguments made here about mathematics to "Aristotle" (*in Euc.* I 1, 11.32.23), not Iamblichus, and that in itself should resolve the attribution issue as far as the author is concerned. Other arguments will have to show that the work in question was the *Protrepticus*. But it does not seem that Proclus could be basing his authorial attribution to *Parts of Animals* I 1.

Second, Aristotle in *PA I I* refers to a discussion of certain matters in other works (640a2-3 and 8), which shows that he self-consciously used his own earlier works in constructing the chapter (whether or not these are to be understood as references to the *Protrepticus* itself).

Third, the rest of *DCM* xxvii (roughly three fourths, from 86.2-88.11) does not run parallel to *Parts of Animals* I 1. The question then remains what is Iamblichus' source for this part of the chapter. Since the content is perfectly continuous with the first part of *DCMS* xxvii (84.21-86.2), the most reasonable answer is that the source for all these parts of the chapter is the same: Aristotle's *Protrepticus*, as we will argue.

Fourth, Aristotle has in several other cases adapted his *Protrepticus* for the opening of a treatise (e.g. *Metaphysics* I 1-2, *EN* I and *EE* I, *Politics* VII 1-3), and so could be expected to do so in his exhortation and prolegomenon to the life sciences. But Iamblichus does not elsewhere (to our knowledge) modify his excerpts in the way and to the degree to which he would have to

have modified them here, if his source was *PA*. Further, there are none of the tale-tell signs of Iamblichean intervention, none of his characteristic diction, particle usage, navigational commentary, and so forth.

Fifth, it is far easier to explain the differences between the two texts on the hypothesis that Aristotle himself transformed a passage from his earlier *Protrepticus*, in order to give these ideas a fresh application of mathematical ideas to zoology, rather than from zoology to mathematics. The first three reasons speak for themselves or will have to be demonstrated in the commentary on other parts of *DCM* xxvii. But the fourth and fifth will be expanded upon here.

Suppose the hypothesis that the excerpt in Iamblichus is an exact citation from the lost work, and Aristotle's comments in these opening lines of *De Partibus Animalium* are in part modified. The following is a translation of the parallel section in the latter work (I.1, 639a1-b6), with deletions, modifications, and additions marked; the words printed in bold correspond literally to the ones in the text of Iamblichus, and the other ones have been <added by Aristotle> or else |modified by Aristotle|, and there is also one deletion indicated <as such> [84.25-85.3].

“Concerning every study and every subject, the more humble ones just as the more honorable ones, there seem to be two conditions, of which one is rightly called a science of the thing, and the other is like a sort of education. |For it is up to| **the educated man** <in a way> **to be able to judge to a good approximation what is right or wrong in the contributions of the speaker.** <For> **we believe the generally educated man is** <also> **someone like that, and being educated is being able to do the aforementioned.** [84.25 ... 85.3] |Now| **we consider** |him however,| **to be able to judge in a way about everything, so to speak, though being one in number,** |while the other is delimited to a certain nature|; <for> **there would be someone else who has the disposition mentioned about a portion.** **Hence it is clear that certain such terms must be the first step in research into** |nature|, **with reference to which the educated man will accept the manner of the proofs, independently of how the truth is, whether thus or otherwise.**

“**I mean, for example, whether those who take up each individual** |substance| **must make determinations about it in accordance with itself, for example** |either those who undertake to study humans or lions or cattle or in fact anything else individually|, **or those who assume the** |accidental properties hold in common| **of everything according to something common. For many of these things come about in many kinds that are different from each other, for example** |sleep, respiration, growth, decay, death, as well as any other such affections and conditions that remain.| <639a23-30, on common attributes in different species.> **But perhaps the ones in which the predicate is the same are different from the ones in which it differs by differing in form, for example** |the motion of animals, for it does not seem to be one in form, for flying, swimming, walking, and crawling are different|. <Therefore we must not overlook how to investigate, I mean whether to study what is common to a genus first and then study the particulars, or start straightaway with the particular.>”

To arrive at the above text, the modifications that Aristotle would have needed to make, if he was responsible for them, can be reduced to the following changes. The whole context has been switched, from mathematical subjects and entities, to zoological science and animal species, without the overall methodological point being changed at all, that it is part of a proper general education to be able to judge well the statements of experts in the sciences, and that such an expertise is a different state than general education. In the course of this switch, Aristotle either suppresses text that ties the comments to mathematics (deletion of 84.25-85.3), or rewrites a phrase so that mathematics is no longer the topic, of which there are two examples: (639a12-13 ‘certain such terms must be the first step in the [research into nature]’ ≈ ‘certain such terms must be the first step in the study of mathematics 85.8-9); (639a16-17 ‘those who take up each individual |substance| must make determinations about it’ ≈ ‘those who take up each individual theorem must make determinations about it’ 85.12-13). Aristotle also needed to replace the mathematical examples with zoological examples, which took place thrice: (639a17-18 ‘for example, |about humans, lions and cattle|’ ≈ ‘for example, about these here triangles’ 85.14);

(639a20-21 ‘for example, |sleep, respiration, growth, decay, death|’ ≈ ‘for example, if someone were to make the demonstrations insofar as it is a triangle or insofar as it is a rectilinear figure in common. For if in a way the same things belong to things different in form, the demonstration of them would in no way be bound to be any different’ 85.17-19); (639b2-4 ‘for example, |flying, swimming, walking, crawling| ≈ ‘for example, similarity in triangles is one thing, but in numbers is something else, and it is necessary to make particular demonstrations according to each one’ 85.23-25). Finally, the last sentence of this part of the lost dialogue is given a loose paraphrase, eliminating the reference to ‘mathematical education’; instead of ‘one should investigate when one should study in common according to kind, and when one should study individually according to each one, for to make determinations about these matters contributes a great deal to mathematical education’ (85.25-86.2), Aristotle wrote in *Part An.* 639b4-6, ‘it should not be overlooked how the investigation should be carried on; I mean, whether to investigate what is common to a kind first and then the features of the species should be studied, or to begin right away with the individual ones.’ There are no other significant modifications that needed to have been made, on this hypothesis. (Insignificant modifications include: the necessary change of gender of pronoun from neuter (*theorema*) (85.12-13) to feminine (*ousia*) at 639a17). (In some cases, there is a difference, but it might be a textual corruption that arose within the respective textual traditions: 85.16 *ta auta* ≈ *tauta* 639a19).

The idea that the reverse of this process is what occurred, and so Iamblichus has utilized Aristotle's *Parts of Animals* I 1 in constructing chapter xxvii of his *DCM*, shifting to this work after just having excerpted from the *Protrepticus* in *DCM* XXVI, does not have much going for it. For starters, it seems unlikely that Iamblichus would choose an aporetic text about the least mathematical of the natural sciences-- the life sciences-- and try to apply methodological points made there to the far more established (as he sees it) disciplines of mathematics. That runs completely contrary to his neo-Pythagorean proclivities. Thus while it does make sense to see how far animal species may be defined and understood like mathematical objects, e.g. triangles (since there is no question a science of these--geometry), it makes little sense to see how far triangles may be understood like animal species, e.g. cows. Further, *DCM* xxvii begins without an introductory comment of the kind we find in *PA* I 1 ("Concerning every study and every subject..."): it makes little sense to think that Iamblichus removed but did not replace this general comment in writing his reformulation of these ideas, but on the other hand it is easily within the bounds of his excerption technique to drop something like this that was present in his source.

The sixth and final reason to think that Aristotle's *Protrepticus* was a source both for his own drafting of the *Parts of Animals* and for the text used by Iamblichus in *DCM* XXVII arises from considering the relationship between the characters and positions of the *Protrepticus* and *Parts of Animals* I as a whole. In *Parts of Animals* I 1, there are two outward references to treatments of a subject elsewhere. About the second of these (at 640a8), regarding the varieties of necessity, commentators agree that this could be a reference either to *Posterior Analytics* II 12.95b36-96a8 or to *Generation and Destruction* II 11.337b33-338a17 (a very close parallel), or both (or to the *On Philosophy* Book III). But about the first (at 640a2-3), “concerning the different necessity in the natural and the theoretical sciences”, it is not so clear to what Aristotle is referring. A strong possibility (thus Lennox, *On the PA, ad loc.*) is *Metaphysics* VI 1.1025b18-1026a30. That passage of the *Metaphysics*, however, distinguishes between theoretical and the other kinds of science generally, comparing them in the first place to the productive and practical sciences, and this is something that was also done in the *Protrepticus*. (Further, we might add, *Metaphysics* VI itself contains rich parallels to the *Protrepticus*.) And so there seems to be

nothing ruling out that in *Parts of Animals* I 1 Aristotle made reference to the *Protrepticus*. (Whether or not this is true, however, as we pointed out above, it is clear that Aristotle was self-consciously reworking earlier material in writing *Parts of Animals* I 1, which lends prima facie plausibility to our interpretation.)

Later in *Parts of Animals* I 1, Aristotle states that “certainly the ordered and the determinate (τεταγμένον καὶ τὸ ὀρισμένον) are far more apparent in the heavens than around us, while the fluctuating and the random (ἄλλοτ’ ἄλλως καὶ ὡς ἔτυχε) are more apparent in the mortal sphere” (641b18-20). This relates to the discussion of “determinate and orderly things and their opposites” (ὀρισμένων καὶ τεταγμένων) in the first overlap passage (*Protr.* VI = *DCM* xxvi; authenticated by *Proclus*, *In Euc. I*, prol. I, chp. 9). Being “determinate and orderly” are two of the three criteria for beauty (*to kalon*) attributed to Aristotle by Proclus (cf. *Metaphysics* XIII 3). In the exhortation to the life sciences in *Parts of Animals* I 5, Aristotle is concerned to show that *to kalon* exists in the animal kingdom as well as in the heavenly bodies: “so too one should approach research about each of the animals without disgust, since in every one there is something natural and beautiful (καλοῦ). For what is not haphazard but rather for the sake of something is in fact present most of all in the works of nature; the end for the sake of which each animal has been constituted or comes to be (συνέστηκεν ἢ γέγονε) takes the place of the beautiful (καλοῦ)” (645a21-26, tr. Lennox, adapted). Later in the same chapter, Aristotle says that “it is apparent that the entire body too has been constituted (συνέστηκε) for the sake of some complete action” (645b16-17). In the *Protrepticus*, there is an extended discussion of why both the parts and the whole of the human being come into existence (and in the order they do, with perfection of the soul coming last of all, so that “old age lays claim to wisdom”). Answers are given on behalf of Pythagoras and Anaxagoras: when asked “why nature and the god generated us”, Pythagoras is said to have answered “to observe the heavens”, Anaxagoras is given a similar answer, but specifying also “to observe the heavens and the stars in it, as well as moon and sun, because everything else at any rate is worth nothing” (51.8-15). Later it is reiterated that “therefore Pythagoras was right, according to this argument anyway, in saying it’s for the sake of cognition and observation that every human person has been constituted (συνέστηκεν) by a god” (52.6-8).

Now we need to see this as the background of Aristotle’s exhortation to the life sciences in *Parts of Animals* I 5, where Aristotle argues, as we have seen, that the determinate and orderly, and indeed the beautiful, exist among the objects of the life sciences, just as they do (though more obviously at first) among the astronomical objects of the mathematical sciences. (Recall that in the *Protrepticus*, Aristotle was obliged to argue that the beautiful exists in the mathematical sciences, something he takes as an established fact in the *Parts of Animals* I.) Aristotle begins the exhortation by addressing the person who is already convinced (unlike, say, Isocrates), that the mathematical sciences are worth pursuing, and he is going to try to convince them that the life sciences are worth pursuing, for many of the same reasons. Aristotle now assures us that “for anyone wishing to labor” (διὰ πονεῖν, 644b30), knowledge about the perishable plants and animals is possible. He has already promised that these things, if studied methodically, may be studied “with the greatest of ease” (ῥᾶστα, 644b17), thus hitting on the protreptic themes of possibility and ease, which we find also in the fourth overlap passage (*Protr.* VI = *DCM* xxvi). It remains then to show that knowledge of the animals is beneficial.

In *Parts of Animals* I 5, Aristotle address detractors of the study of animals, who consider their study “disagreeable to perception” (645a7?) and who are “childishly disgusted at the examination of the less valuable animals” (645a15). Who are these detractors? This question

does not seem to have been answered, or even asked. But the *Protrepticus* provides a clue to the answer. In *Protr.* IX, Aristotle argues that all organic parts of animals are for the sake of something (he gives the example of the eyelid, and seems to add a detail not present in treatment of the eyelid at *PA* II 3), and he then says that “the animals are surely things that have come to be by nature, either absolutely all of them, or the best and most honorable; for it makes no difference if someone thinks that most of them have come into being unnaturally because of some corruption or wickedness” (50.27-51.4). Soon thereafter, the argument is put into the mouth of Anaxagoras in the *Protrepticus* that only the stars, sun, and moon are worth studying, “everything else being worth nothing”. Aristotle in the *Parts of Animals* I 5 argues, to the contrary, that knowledge of the terrestrial plants and animals is very worthwhile, and that all animals are generated by nature for the sake of the good and the beautiful. Thus he quotes Heraclitus to the effect that “there are gods even here”, and then goes on to say that all the living things have been constituted by nature for the sake of something good and the beautiful. He points out that the parts of the human being have been constituted for something good and beautiful. In the *Protrepticus* we learn that this is “for the sake of some cognition and reasoning” (a result which fits perfectly with Aristotle’s suggestion that intelligence is the function of the human animal (and, for example, the reason only they have hands) in *Parts of Animals* IV 10.

84.22 κρῖναι εὐστόχως: This text is linked to *Protr.* VI 37.20-22.

84.26-85.1 ἀπαιτεῖν: “Demand”. Cf. *NE* 1094b27, 1098a27,33, 1104a3.

85.3-4 γὰρ τὸν ἀπλῶς πεπαιδευμένον περὶ πάντων: Cf. Proclus *in Euc.* I 1: ὁ μὲν γὰρ ἀπλῶς πεπαιδευμένος περὶ πάντα κριτικός, φησὶν Ἀριστοτέλης (11.23-24).

<xxvii 86.2-22: commentary>

86.2-22 attribution and voice: After a brief and characteristic transitional remark, Iamblichus resumes quoting from his source (Aristotle *ex hypothesi*). But it does not seem that this was the first sentence of the speech in Aristotle’s *Protrepticus*: some argument seems to have been made, and now we are hearing the warrant for it. Thus, as usual, we have to recognize a gap of unknown length at the point in the cover text of the transitional remark.

That the thought here is attributable to Aristotle is directly asserted by Proclus, *in Euc.* I 1, 11: “For it is similar, says Aristotle, to demand proofs of an orator, and to accept persuasive arguments from a mathematician.” (33.24). But the same thought will be immediately be recognized as Aristotelian in connection with *NE* I 3, where Aristotle opens a discussion of the degree of precision apposite to ethics by saying (1094b11-12), “what is said would be sufficient if it were to provide clarification according to the underlying material (ὑποκειμένην ὕλην),” and then pointing out that good things such as wealth, virtue, and fine and fair conduct all admit of much difference and fluctuation (b15-16). So we should “appreciate” (ἀγαπητὸν) if those who speak about and reason from such matters indicate the truth roughly and in outline, and reach conclusions that are like that, true only for the most part (b19-22). And then he offers a version of the above stretch of text, with modifications that suggest that he is adapting (by memory or with consultation) a passage from an earlier published work of his own: “So in the same way we should accept what is said, for it is the mark of an educated man to search for precision to the degree that applies to each type of thing, to the degree that the nature of the subject admits, for it seems pretty much the same <mistake> to accept from a mathematician plausible reasoning and to demand from an orator demonstrations <a thought related to that at 86.4-6, below>. And each man judges well what he is cognizant of, and is a good judge of them; and while the educated man in each field is a good judge of that, the man who has a universal education is a good judge of everything” (1094b22-1095a2; cf. 85.3-7). Aristotle finishes this methodological remark on ethics

and politics by concluding that since every young man lacks the relevant experience, no youngster can be a qualified student of political science, a conclusion which is also independently reached by reflecting that youngsters are often still in the grip of passion, not reason (1095a2-11).

86.2 τὴν ὑποκειμένην οὐσίαν: Although Iamblichus wrote ‘the underlying substance’ (ὑποκειμένον οὐσία), Aristotle’s original text in the *Protrepticus* may have (but did not necessarily) read ‘the underlying material’ (ὑποκειμένον ὕλη), for two reasons: (1) Proclus in *Euc. I* uses those words in reporting “what Aristotle says” (33.21-34.1); and (2) Aristotle himself uses the words “underlying material” in *NE I* 3.1094b12, when he resumes these ideas (see above note).

86.7-8 δεῖ ζητεῖν οὐδ’ ὁμοίως τὴν αὐτὴν ἀκρίβειαν ἐν ἅπασιν: Compare *Protr.* VI 39.17 and *DCM XXVI* 83.7, 24-25 and notes *ad loc.*

86.9-11 οὐχ ὁμοίως ἐν χρυσῷ καὶ καττιτέρῳ καὶ χαλκῷ ζητοῦντες τὸ ἀκριβές, οὐδὲ ἐν φελλῷ καὶ πύξῳ καὶ λωτῷ: Nowhere in the Corpus does Aristotle give an explanation as to why different degrees of precision are to be expected from the arguments of the mathematician and the rhetorician. And although the point seems almost obvious, this only goes to show how thoroughly Aristotelian (and not, e.g., Isocratean) we have become. The fact that Aristotle gives a reason here (by drawing an analogy to the other arts) thus adds precious information for the interpretation of that crucial Aristotelian methodological point.

The first series (gold, tin, and bronze) is a progression based on the hardness of these materials, and this is paralleled in the second series (cork, box, and lotus), in which kinds of wood are arranged from softest to hardest. From the arts of metalworking and woodworking we can see that different degrees of precision are required in different materials (and thus, in many cases, different tools and techniques), and just as it would be absurd to expect the same methods and techniques to apply to working in gold as bronze, or cork and lotus, so it would be absurd to expect the same methods and criteria to apply to rhetoric and mathematics. The underlying reason is that each of these arts and sciences has its own "underlying materials" to which its methods must be adapted.

86.12-14 εὐθύς γὰρ ποιήσει τὰ ὑποκείμενα διαφοράς, ὅταν ἀπλούστερα ἢ τὰ δὲ ἐν συνθέσει μᾶλλον, καὶ τὰ μὲν ὅλως ἀκίνητα τὰ δὲ κινούμενα: Cf. Proclus in *Euc. I* 1: εὐθύς γὰρ τὰ ὑποκείμενα ταῖς ἐπιστήμας ἢ ταῖς τέχνησι ποιεῖ διαφοράς, οἷον εἰ τὰ μὲν ἀκίνητα, τὰ δὲ κινούμενα, καὶ τὰ μὲν ἀπλούστερα, τὰ δὲ συνθετώτερα, καὶ τὰ μὲν νοητά, τὰ δὲ αἰσθητά (11.34.8-11).

86.15-16 οἷον τὰ ἐν ἀριθμοῖς καὶ ἐν ἁρμονίᾳ ἢ τὰ ἐν γεωμετρίᾳ καὶ ἀστρονομίᾳ: These domains correspond not only to Aristotle's division of mathematical sciences, but also to the examples raised earlier in *DCMS XXVI* (in the voice of "Isocrates") to support the point that practical mathematical sciences are superior to theoretical ones: geometry vs. land-surveying (80.5-13), harmonics vs. musical performance (80.13-23), and astronomy vs. navigational astronomy (80.23-81.1). (For the purposes of the examples in both cases, arithmetic and harmonics are treated together).

The term ἀστρονομία deserves special comment, however. Iamblichus’ usual term is ἀστρολογικῆς (*DCM* 19.1, 47.15, 86.16). In *DCM XXIII* the term τῆς ἀστρολογικῆς ἐπιστήμης (72.18-19) is used, and in *XXVI* κατὰ τὴν ἀστρολογίαν (80.24); see notes *ad loc.* for bibliography and discussion of the terminology.

86.23-87.22 attribution and voice: The same speaker seems to continue his speech, but now focuses not on the comparison of mathematical with other (i.e. rhetorical) kinds of demonstrations, but on the details of mathematical demonstration.

86.24-26 ὥστε οὐδ' ἐνταῦθα ὁμοίας αἰτίας οὐδ' ὁμοίους [τοὺς] λόγους ἀποδεικτέον: Festa was understandably puzzled by the asymmetry of the articles in the received text and proposed to restore the article to the first item (<τὰς> αἰτίας); but the run of thought suggests rather the removal of a spuriously added article to the second items ([τοὺς] λόγους); with the articles the meaning is “not accept either the causes or the arguments to be similar”; without the particles the meaning is “not accept either similar causes or similar arguments.”

86.26-87.1 ἀνάγκη δὲ πρὸς ταῦτα γνωρίζειν τί ταῦτὸ καὶ ἕτερον ἔχουσι καὶ τί κατ' ἀναλογίαν ταῦτόν: Cf. Proclus *in Euc. I*, 1: καὶ περὶ ταυτότητος καὶ ἑτερότητος ἐπεσκέφθαι δεῖ τὸν μέλλοντα κρίνειν ὀρθῶς τοὺς τῆς μαθηματικῆς λόγους καὶ περὶ τοῦ καθ' αὐτὸ καὶ τοῦ κατὰ συμβεβηκὸς καὶ περὶ τῆς ἀναλογίας καὶ περὶ πάντων τῶν τοιούτων (34.20-24).

87.10 ὑφηγησάσθαι: Cf. *NE* 1252a17.

87.16-17 πολλοὶ τῶν νεωτέρων Πυθαγορικῶν: For this historically nuanced way of referring to the Pythagoreans, indicative of Aristotle's way of thinking (but not Iamblichus'), see: οἱ Πυθαγόρειοι (XXIII 73.18-19), τοῖς ὀνομασθεῖσι Πυθαγορείοις (XXIV 75.5), οἱ δὲ Πυθαγόρειοι (XXV 78.8) and notes *ad loc.*

<xxvii 87.22-88.11: commentary>

87.22-88.11 attribution and voice: A brief but typical Iamblichean closing is preceded by a sentence that is not evidently Iamblichus, and yet is insufficiently progressive to be imagined playing a functional role in the source text: thus we leave it in plain text to indicate that we do not know exactly how this speech ended. As always, at the margins of attributable blocks such as *Protrepticus* VI and XII, *DCM* XXI, XXVI, etc.), certainty is least possible.

One might interpret the entire section as an Iamblichean transition, given the navigational remark below at 87.23-26, except for the fact that the doctrine that is referred to seems to be one that would be rejected by Iamblichus but embraced by Aristotle's philosophy of mathematics.

87.23-26 ἔν τε τοῖς προάγουσι νυνὶ λόγοις καὶ ἐν τοῖς ἕστερον ῥηθησομένοις ἀποδείξομεν, ὅτι πολλὰ οὐσίαι καὶ ἕτεραι ἀκίνητοι καὶ κατὰ τὰ αὐτὰ ἔχουσαι, οὐ μόναι αἱ τῶν μαθημάτων, ἀλλὰ καὶ ἄλλαι: It is crucial to determine whether this navigational remark applies to Iamblichus' own plan in the *DCM*, or whether it should be interpreted as part of a speech in the source text, which thus gives a description of the content of one of those speeches. In what follows, we argue that the comment better describes what came before and after in the dialogue of Aristotle's *Protrepticus* (based on the sequence determined by our reconstruction), and that it makes less sense to interpret the remark as a navigational pointer of Iamblichus within his own *DCM*. See next note.

87.26-29 καὶ ὅτι πρεσβύτεραι καὶ τιμιώτεραι αὐτῶν εἰσιν ἐκεῖναι, ἀποδείξομεν δὲ καὶ ὅτι οὐ μόνον ἀρχαί εἰσιν αὐταὶ αἱ μαθηματικά, ἀλλὰ καὶ ἄλλαι, καὶ αἱ γε πρεσβύτεραι καὶ δυνατώτεραι αὐτῶν εἰσιν ἐκεῖναι: In *DCM* xxiii, Aristotle remarks that "the objects that are observed in the heavens have the most honorable (τιμιωτάτην) and most divine (θειοτάτην) rank of the things perceptible to us and are naturally cognized by the science of astronomy, which is one of the mathematical sciences"

(72.16-20). We must be looking, then, for something with principles somehow more senior and honorable than those of astronomy. The *prima facie* reason not to think that in the preceding lines Iamblichus is referring to his own work the *DCM* (and not quoting from his source, i.e. Aristotle's *Protrepticus*) is that it does not seem to fit with Iamblichus neo-Pythagorean conception of science to recognize principles "more senior and more honorable" (πρεσβύτεραι καὶ τιμιώτεραι) and "more senior and more powerful" (πρεσβύτεραι καὶ δυνατώτεραι) other than those in mathematics, and nothing in later chapters of the *DCM* goes on to argue this. This doctrine does, however, fit perfectly with Aristotle's philosophy of science and mathematics in general, and in particular with his remarks about it in the *Protrepticus*. In *DCM* XXVI Aristotle speaks of philosophy in general, despite giving a head start to the other skills, and despite not getting the public honors (τιμῶνες) awarded to other more practical skills, nevertheless philosophers have advanced the most because "in their nature they have seniority (πρεσβύτατα), for what is later in coming to be takes the lead in substance and in perfection" (83.20-22). Similarly, in *Protrepticus* VII he speaks of the "most authoritative and most honorable" (κυριώτατα καὶ τιμιώτατα) parts of the soul developing after the body, and after the less honorable parts. Truth is "the most authoritative (κυριώτατον) function of this part of the soul" (42.22-23). Aristotle eventually reaches the conclusion that being intelligent and having theoretical knowledge is "of all things the most valuable (ἀρετώτατον) for humans" (43.22). In this respect, he says that it is similar to vision; of which he later remarks "of the senses vision is necessarily the most valuable and the most honorable" (μάλιστα ἀρετὴν εἶναι καὶ τιμίαν) (44.22-23). But he then argues that intelligence is "more valuable than it and all the others, and more valuable than living" (44.23-24). It seems, therefore, that Aristotle considers intelligence, in both its theoretical and practical aspects, to grasp principles that are "more senior" and "more honorable" (and "more authoritative" and "more valuable") than anything else, including all the mathematical sciences in both their theoretical and practical aspects.