



## Avicenna's Use of the Arabic Translations of the *Posterior Analytics* and the Ancient Commentary Tradition\*

Riccardo Strobino

Cambridge, UK

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### Abstract

In this paper I shall discuss the relationship between the two known Arabic translations of Aristotle's *Posterior Analytics* and Avicenna's *Kitāb al-Burhān*. I shall argue that Avicenna relies on both (1) Abū Bishr Mattā's translation and (2) the anonymous translation used by Averroes in the *Long Commentary* as well as in the *Middle Commentary* (and also indirectly preserved by Gerard of Cremona's Latin translation of Aristotle's work). Although, generally speaking, the problem is relevant to the history of the transmission of the *Posterior Analytics* from Greek through Syriac into Arabic, I do not intend to give a systematic presentation of the historical setting in which Aristotle's work became readily available to the Arabo-Islamic culture. My aim here is rather to isolate and discuss some pieces of evidence concerning the texts that seem to have been available to Avicenna.

In addition to that, I shall also provide evidence concerning the relationship with the Greek commentary tradition (in particular Philoponus and Themistius) that is likely to have influenced Avicenna in his discussion of Aristotle's theory of demonstration and scientific knowledge.

### Keywords

Avicenna, Averroes, *Posterior Analytics*, Greek into Arabic, Greek Commentators

### I. Introduction

This paper has the following rationale. There is an established literature on the topic of the Arabic translations of the *Posterior Analytics*. From the 1950s onwards it has become progressively clearer that two translations of Aristotle's

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work were available: (1) Abū Bishr Mattā's (d. 940) translation<sup>1</sup> and (2) a later anonymous translation used, along with the former, by Averroes in his *Long Commentary* (*Sharḥ al-Burhān*, partially extant in Arabic up to *An. Post.*, A23, entirely in Hebrew and Latin), in the *Middle Commentary* (*Talkhīṣ al-Burhān*, entirely extant in Arabic, Hebrew and Latin) and by Gerard of Cremona's Latin translation of the *Posterior Analytics*.<sup>2</sup> As a matter of fact, scholars like Minio-Paluello, Walzer, Gätje and Schoeler, Hugonnard-Roche, and Badawī<sup>3</sup> have focused extensively (and exclusively) on the relationship between these two translations and Averroes' texts: originally the case was made in connection with the Hebrew and Latin translations of the two commentaries (Minio-Paluello), and later on—after the rediscovery in MS. Berlin, Ms. Or. fol. 3176 of a long fragment of the *Long Commentary* and of the entire *Middle Commentary*—directly relying on the Arabic original (Gätje and Schoeler).<sup>4</sup> In the context of such

<sup>1</sup> See Aristotle, *Manṭiq Aristū*, edited by 'A. Badawī, 3 Vols. (Cairo: Maktabat Dār al-Kutub al-miṣriya, 1948–1952) [= *Manṭiq Aristū*]. Abū Bishr Mattā's translation is already mentioned in Ibn al-Nadīm, *Kitāb al-Fihrist li-l-Nadīm*, edited by G. Flügel, J. Rodiger and A. Müller, 2 Vols. (Leipzig: F.C.W. Vogel, 1871–1872). Cf. also F. Peters, *Aristoteles Arabus: The Oriental Translations and Commentaries on the Aristotelian Corpus* (Leiden: Brill, 1968).

<sup>2</sup> The Arabic text is found in Averroes (Ibn Rushd), *Sharḥ al-Burhān li-Aristū wa-Talkhīṣ al-Burhān*, edited by 'A. Badawī (Kuwait: 1984), 45–153 [= *Talkhīṣ*] and 157–486 [= *Sharḥ*], respectively. The Latin translations of the *Long Commentary* I shall refer to throughout this article are found in Averroes, *Aristotelis Opera cum Averrois Commentariis* (Venetiis: apud Junctas, 1562–1574): *Primi Voluminis Pars II Aristotelis Stagiritae Posteriorum Resolutiorum Libri Duo cum Averrois Cordubensis Magnis Commentariis triplici interpretatione distinctis* (Venetiis: apud Junctas, 1562), 1–668<sup>v</sup> (repr. Frankfurt am Main: Minerva, 1962, Vol. I Part. 2a) [= *Giuntina, LC*]. The Latin translation of the *Middle Commentary* is found in Averroes, *Aristotelis Opera cum Averrois Commentariis* (Venetiis: apud Junctas, 1562–1574): *Averrois Expositio Media In Librum Demonstrationis Aristotelis* (Venetiis: apud Junctas, 1562), 1–35<sup>v</sup> (repr. Frankfurt am Main: Minerva, 1962, Vol. I Part. 2b and 3) [= *Giuntina, MC*]. As for Gerard of Cremona's Latin translation of the *Posterior Analytics*, see Aristotle, *Analytica Posteriora Gerardo Cremonensi Interprete*, edited by L. Minio-Paluello (Bruges-Paris: Desclée de Brouwer, 1954) [= *AnPGC*].

<sup>3</sup> See L. Minio-Paluello, "Note sull' Aristotele latino medievale," *Rivista di filosofia neo-scolastica* 43 (1951): 97–124, and Id., "Praefatio," in Aristotle, *Analytica Posteriora*, viii–xxxiv; R. Walzer, "New Light on the Arabic Translations of Aristotle," *Oriens* 6 (1953): 91–142; H. Gätje and G. Schoeler, "Averroes' Schriften zur Logik: Der arabische Text der *Zweiten Analytiken* im *Grossen Kommentar* des Averroes," *Zeitschrift der Deutschen Morgenländischen Gesellschaft* 130, no. 3 (1980): 557–585; H. Hugonnard-Roche, "Averroes et la tradition des *Seconds Analytiques*," in *Averroes and the Aristotelian Tradition*, edited by G. Endress, J.A. Aertsen and K. Braun (Leiden: Brill, 1999), 172–187; 'A. Badawī, "Taṣḍīr 'āmm," in Averroes, *Sharḥ al-Burhān li-Aristū*, in particular Section 5 "al-tarjama al-'arabiya al-wārīda fī Taṣḍīr Ibn Rushd."

<sup>4</sup> Note that the *Middle Commentary* is preserved in Arabic by a number of manuscripts, not only by the Berlin manuscript in which it survives alongside the fragment of the *Long Commentary*. See the list in Averroes, *Middle Commentary on Aristotle's Posterior Analytics*, critical edition by M.M. Kassem, completed, revised and annotated by C.E. Butterworth and A. Haridi (Cairo: al-Hay'a al-miṣriya al-'amma li-l-kitāb, 1982).

discussions, Averroes' debt to the ancient commentary tradition was also called into play.<sup>5</sup>

By contrast, the relationship between these two translations and the bits of "Arabic Aristotle" that can be extrapolated on the basis of explicit and implicit quotations embedded in the text of Avicenna's *Kitāb al-Burhān* has attracted hardly any attention so far.<sup>6</sup> In this respect, the *Burhān* is still, to a large extent, uncharted territory. This fact can be partially explained by the intrinsic difficulty in identifying and extrapolating from the continuous flow of Avicenna's text portions that can actually count as quotations from Aristotle, or as proper lemmata, to be compared with the two extant translations. Indeed, even when such bits come along with relevant markers (above all the expressions *qāla l-mu'allimu l-awwalu* or *qāla fi l-ta'limi l-awwali*<sup>7</sup>) they often look much more like reelaborations, since they do not correspond to either of the two translations that have come down to us.<sup>8</sup> Nonetheless, it can be argued with good reasons, as I shall endeavour to do in the following, (1) that Avicenna was familiar with both Mattā's translation and the anonymous translation (unless we decide to assume an even stronger hypothesis that will be discussed below); (2) that in some cases,

<sup>5</sup> The state of the art is summarized in Hugonnard-Roche, "Averroes et la tradition," 171–173. Cf. also 'A. Elamrani-Jamal, "Les *Seconds Analytiques*: Tradition arabe, traductions arabes, commentaires grecs, commentaires arabes," s.v. "Aristote de Stagire, *Organon*—Tradition syriaque et arabe," in *Dictionnaire des Philosophes Antiques*, edited by R. Goulet, Vol. 1 (Paris: CNRS Editions, 1989), 521–524.

<sup>6</sup> The only example is represented, to the best of my knowledge, by H. Eichner, "al-Fārābī and Ibn Sīnā on 'Universal Science' and the System of Sciences: Evidence of the Arabic Tradition of the *Posterior Analytics*," *Documenti e studi sulla tradizione filosofica medievale* 21 (2010): 71–95; in A. Bertolacci, "Avicenna and Averroes on the Proof of God's Existence," *Medioevo* 22 (2007): 61–97 we find the suggestion that, as far as Fārābī and Avicenna are concerned, there is no proof that they knew the anonymous translation. The arguments I shall put forward here may justify, I believe, a revision of the claim in the case of Avicenna (and possibly in that of Fārābī, too). For a more systematic discussion of Avicenna's *Burhān*, see R. Strobino, "Avicenna on the Indemonstrability of Definition," *Documenti e studi sulla tradizione filosofica medievale* 21 (2010): 113–163.

<sup>7</sup> These expressions are used to introduce quotations from Aristotle. Although they need not be necessarily regarded as proper lemmata, there are some cases in which the presence of additional markers like *qawlubū* ("his saying," or "when he says") followed by a short expression can hardly count as anything else. In such cases, there is no alternative other than assuming that what Avicenna is discussing is a passage or an expression literally taken from whatever he was reading.

<sup>8</sup> Were we to take them literally, we would be forced to claim that yet another translation of the *Posterior Analytics* should have existed. What we find, however, is not enough in and of itself to prove such a conclusion (there might have been other translations, but it cannot be proven by appealing to such an argument). It might well be the case that Avicenna is sometimes quoting by heart or elaborating on the text or again, that he is quoting through the mediation of some other source. In addition to that, one should also keep in mind that passages might be the combined effect of a source text (maybe the result of a contamination of two translations) plus the contribution of the commentary tradition. I owe this point to Asad Ahmed who kindly shared his thoughts with me at a Cambridge conference on Arabic logic in November 2011.

he is clearly using one translation against the other, or the other way around; and (3) that he also relies, in his work on the *Posterior Analytics*, on both Themistius' paraphrasis and Philoponus' commentary.

## II. Avicenna's Position: Method and Evidence

The standard view has been for a long time, following Minio-Paluello's seminal work, that Averroes used the anonymous translation in the *Long Commentary*, whilst commenting on the first book of *An. Post.*, as well as in the whole *Middle Commentary*, whereas he relied on Mattā's translation for the second book. However, after the discovery of the Berlin manuscript with part of the Arabic original of the *Long Commentary*, it has been proven that Mattā was already used by Averroes in the first book.

How does Avicenna position himself in this connection? In what follows I shall argue that

1. he uses Mattā while discussing the contents of the first book of *An. Post.*;
2. he uses the anonymous translation in at least one striking case in the second book (if he was using Mattā in that case, we would have to assume that he had a version of Mattā's text along with the glosses that accompany it in the *Parisinus* or some other text influenced by the latter<sup>9</sup>);
3. he uses Mattā, along with the anonymous translation, for the second book.
4. he uses Themistius and Philoponus (and perhaps some other source in the ancient commentary tradition) for both the first and the second book.

I shall present seven passages. Three of them (Texts 1–3) compare Avicenna's text and the translations. The other four (Texts 4–7) deal with the relation to the commentators or other terminological problems.

I have checked Avicenna's texts taken from the *Burhān* against the following sources:

1. Aristotle<sup>10</sup>
2. Abū Bishr Mattā's translation
3. Lemma<sup>a</sup> from Averroes' *Long Commentary* in Arabic (when available i.e. up to *An. Post.*, A23)<sup>11</sup>

<sup>9</sup>) The manuscript in question is the famous Paris, BNF Ar. 2346, which contains the Arabic *Organon* in its entirety.

<sup>10</sup>) Aristotle, *Aristotle's Prior and Posterior Analytics: A Revised Text with Introduction and Commentary* by Sir D.W. Ross (Oxford: Clarendon Press, 1949).

<sup>11</sup>) Bertolacci describes the organization of Averroes' *Tafsīr* on the *Metaphysics* in the following

4. Averroes' *Middle Commentary* in Arabic (relevant as a witness of the anonymous translation)<sup>12</sup>
5. Averroes' *Middle Commentary* in Latin (Burana)
6. Lemma<sup>a</sup> from Averroes' *Long Commentary* in Latin
7. Lemma<sup>b</sup> from Averroes' *Long Commentary* (Mantino when available, Burana and Balmes always)
8. Commentum from Averroes' *Long Commentary* (same Latin translations), if relevant
9. Gerard of Cremona's Latin translation of *An. Post.*
10. Gerard's Latin translation of Themistius' paraphrasis (which is known to derive from the Arabic)
11. Themistius' paraphrasis (Greek)
12. Philoponus' commentary (Greek).

In the analysis of each single passage that I am going to discuss, I shall include quotations from some or all of the above sources, according to their relevance to the context. The order will also vary according to the relative significance of the text.

Generally speaking, five possible configurations can be used to describe the relationship of the two translations with each other on the one hand, and Avicenna's *quasi-lemmata* on the other hand. The following categorization should not be taken too rigidly, because such similarity or dissimilarity come in degrees, but it can help us classify the cases in types:

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terms "the translations upon which Averroes mainly relies for commenting on the *Metaphysics* are quoted in portions of variable length (Textus) at the beginning of the single units of the *Tafsir*. Each of the Textus, in its turn, is further divided into sentences (Lemmata), which are quoted a second time and commented upon by Averroes one after the other," see A. Bertolacci, *The Reception of Aristotle's Metaphysics in Avicenna's Kitāb al-Shifā': A Milestone of Western Metaphysical Thought* (Leiden: Brill, 2006), 13. The same is true of Averroes' *Long Commentary* on the *Posterior Analytics*. I shall adopt the following convention: the text of the main units (Textus) will be referred to as Lemma<sup>a</sup>; the text of the subunits (Lemmata) in which the former is divided and repeated will be referred to as Lemma<sup>b</sup>; the text of the commentary will be referred to as Commentum. In the famous XVth century Giuntina edition (see above, f. 2), the multiple Latin translations are of Lemma<sup>b</sup> and of Commentum: three of them for roughly two-thirds of the first book (Mantino, Burana, and Balmes), the remaining two for the whole text (Burana and Balmes). In this connection, cf. also E.F. Cranz, "Editions of the Latin Aristotle Accompanied by the Commentaries of Averroes," in *Philosophy and Humanism: Essays in honour of P.O. Kristeller*, edited by E. Mahoney (Leiden: Brill, 1976), 116–128.

<sup>12</sup> Averroes' *Middle Commentary* is not structured in the same way as the *Long Commentary*: it contains no proper lemmata, and the translation on which the work is based must be reconstructed indirectly.

- (a) Mattā's text and the anonymous text are similar or identical:
  - (aa) Avicenna agrees with both
  - (ab) Avicenna agrees with neither
- (b) Mattā's text and the anonymous text diverge clearly and significantly:
  - (ba) Avicenna agrees with or is closer to Mattā's translation
  - (bb) Avicenna agrees with or is closer to the anonymous translation
  - (bc) Avicenna agrees with neither

Each of the cases that are discussed below can be traced back to one of these alternatives.

Case (aa) is, to some extent, trivial and uninformative with regard to our present concerns, especially if we acknowledge that the anonymous translation may be quite likely a revision of Mattā's translation.<sup>13</sup> Where there is strong agreement or identity between the two, there is obviously no way for us to tell which is being used by Avicenna (or by Averroes, for that matter).

Cases (ab)–(bc) are problematic, for they are compatible with different scenarios. No matter whether Mattā and the anonymous translation agree with each other [= (ab)] or not [= (bc)], if Avicenna has yet another text that differs from both, the origin of the discrepancy is difficult to establish. It might be due to the fact that he is following some other text or deliberately modifying a reading that is found in the two translations, if they agree, or from one of them only, if they do not.<sup>14</sup>

For such reasons, in a preliminary attempt to discuss this set of issues, I am going to be concerned with evidence relative to cases (ba), (bb), and to present an instance of (bc) that I consider of special interest despite its difficulty (it is not entirely clear what the relationship between Mattā and the anonymous translation is like in the first place).<sup>15</sup>

Below is a summary of the passages that are reported in the textual appendix, with their respective significance.

The first three passages are about the relationship between Avicenna and the two translations. The last four are in support of the thesis that Avicenna is familiar

<sup>13</sup> In support of this claim, see Minio-Paluello, "Note sull' Aristotele latino," 110–112, and Gätje and Schoeler, "Averroes' Schriften zur Logik," 567–568.

<sup>14</sup> See Eichner, "al-Farābī and Ibn Sīnā on 'Universal Science,'" 84–95 for evidence concerning the option that some divergences might be due to the influence of the commentary tradition (possibly even beyond Philoponus and Themistius).

<sup>15</sup> I shall not deal, in this context, with type (ab), as I have not found so far absolutely compelling evidence concerning cases in which Avicenna clearly departs from one and the same (or strongly similar) text shared by the two translations. However, given the complex relations between the *Burhān* and its sources, this configuration should be nonetheless taken into account as a plausible alternative, which only further investigation should confirm or rule out.

with both Themistius' paraphrasis and Philoponus' commentary, and possibly with even more.

Text 1. (*An. Post.*, A2) [Case (ba)]<sup>16</sup>

Avicenna uses Mattā's translation against the anonymous translation, while commenting on the occurrence of the expression *mu'talif* in the definition of 'demonstration,' which is found only in the former.

Text 2. (*An. Post.*, B1) [Case (bb)]

Avicenna uses the anonymous translation against Mattā's: the terminology for the Aristotelian four-fold classification of scientific enquiries that he adopts is more easily understandable under this assumption. Alternatively, we would be forced to assume a stronger hypothesis, namely that he is directly acquainted with a tradition connected with the glosses to the *Parisinus*.

Text 3. (*An. Post.*, B2) [Case (bc) with Problems]

Avicenna *does not* use Mattā in this case; he might be using with considerable freedom the anonymous translation; *or* he might be relying on a different branch in the transmission of one of the two texts (the problems raised by the presence of such discrepancies in the Latin translations of Averroes' *Long Commentary* seem to have gone unnoticed so far with respect to our present concerns, and would deserve further investigation, especially with regard to the role of Qalonymos b. Qalonymos' Hebrew translation, which was the source for all of the former). This would be confirmed, as is pointed out below, by the fact that the same variant is witnessed in the Latin translation of the relevant Lemma<sup>b</sup> by Burana *against all* other witnesses of the text (in other words, Avicenna and Burana are the *only* witnesses of a contraposition *bi-l-juz'*/*in parte* vs *bi-l-kulli*/*in totum* against the (by far) more frequent contraposition *bi-l-juz'*/*in parte* vs *'alā l-iṭlāqi*/*simpliciter*).

The remaining four passages deal with the relationship between Avicenna's text and the commentary tradition.

<sup>16</sup> Another example of this kind is found in *An. Post.*, A22 where Avicenna uses Mattā against the anonymous translation. In a famous passage in which Aristotle dismisses Platonic Forms, the Greek reads "τὰ γὰρ εἶδη χαίρειτω," *An. Post.*, A22, 83a32. The corresponding passage in Mattā's translation reads "fa-ammā l-ṣuwaru fa-'alayhā l-salāmu," *Manṭiq Aristū*, II, 376.4, whereas the anonymous translation has "fa-ammā l-ṣuwaru fa-'alā dhikribā l-'afā'u," (i.e. "mentioning the Forms is useless") *Sharḥ*, 451.3. Avicenna agrees with Mattā and seems to be quoting his translation almost *verbatim* "ammā l-ṣuwaru l-aflāṭūniyatū, fa-'alayhā l-salāmu," *Burbān*, III, 7, 233.1.

Text 4. (*An. Post.*, B15) [*Knowledge of Themistius' Paraphrasis*]

The passage proves that Avicenna has direct acquaintance with Themistius' paraphrasis (the example is only in Themistius and Avicenna in relation to the same context: it does not occur in Aristotle or Philoponus).

Text 5. (*An. Post.*, B16) [*Knowledge of Philoponus' Commentary*]

The passage proves that Avicenna has direct acquaintance with Philoponus' commentary (the example is only in Philoponus and Avicenna in relation to the same context: it does not occur in Aristotle or Themistius).<sup>17</sup>

Text 6. (*An. Post.*, A13) [*Gloss—Knowledge of Philoponus or of a Source in the Commentary Tradition Deriving from or Familiar with the Baghdādī Glosses that are Transmitted in the Parisinus along with Mattā's Translation*]

Two conclusions might be drawn from this example. A weaker conclusion counts as a further proof that Avicenna knows and makes use of Philoponus' commentary. A stronger conclusion, consistent with the former but with wider implications, is that with respect to this passage, Avicenna's discussion is prompted not (or at least not merely) by knowledge of Philoponus' commentary—which is indeed the ultimate source—but is mediated by the gloss corresponding to this passage in the *Parisinus* containing Mattā's translation of the *Posterior Analytics* (I mean the gloss directly, or an earlier source in the Arabic exegetical tradition of this passage, from which the gloss derives).

<sup>17)</sup> The same conclusion can be drawn with respect to another passage at least. In *Burbān*, IV, 1, Avicenna introduces a geometrical example (connected to the first proposition of the first book of Euclid's *Elements*) in his discussion of *An. Post.*, B1–3. A similar example, in the very same context, is found only in Philoponus' commentary. The latter, commenting on *An. Post.*, B3, 90b13, says “ἔστι δὲ καὶ ἀποδεικτικῶς δεῖξαι τοῦτο, ὡς ἔχει [the equilateral triangle] τὰς τρεῖς πλευρὰς ἴσας, οὕτως· ὅταν δύο κύκλοι διὰ τῶν κέντρων περιαχθέντες τέμνωσιν ἀλλήλους καὶ τὴν αὐτὴν διάμετρον [read: radius] ἔχωσι, τότε τὸ ἐκ τῆς διαμέτρου [read: radius] συγκείμενον τρίγωνον καὶ τῶν δύο εὐθειῶν τῶν ἀπὸ τῆς ἀφῆς ἀχθεισῶν ἄκρι τῶν κέντρων ἰσόπλευρόν ἐστιν· αἱ γὰρ ἀπὸ τοῦ κέντρου ἐκβαλλόμενα εὐθεῖαι ἴσαι ἀλλήλαις εἰσίν,” see Philoponus, *Ioannis Philoponi in Aristotelis Analytica Posteriora Commentaria cum anonymo in librum II*, edited by M. Wallies, CAG, Vol. XIII (Berlin: Reimer, 1909), 343.13–18; cf. also Philoponus (?), *On Aristotle Posterior Analytics 2*, translated by O. Goldin (London: Duckworth, 2009), 26–27. Avicenna's text reads “fa-yakūnu l-baḥṭhu ‘an haliyatihā [sc. of per se accidents] li-l-mawḍū‘i baḥṭhan bi-waḥshin mina l-wujūbi ‘an haliyatihā muṭlaqan: ka-l-baḥṭhi ‘an haliyati l-muthallathi l-mutasāwi l-aḍlā‘i li-l-muthallathi l-ma‘mūli ‘alā khaṭṭin tarfāhū markazā dā‘iratayni wa-qad wuṣilā aydan bi-l-taqāṭi‘i [BDW: bi-l-taqāṭu‘i], fa-huwa baḥṭhun ‘an haliyatihī fi-naḥsihi. fa-bi-dhālika yu‘lamu anna labū imkāna wujūdin,” *Burbān*, IV, 1, 262.10–12.



Text 7. (*An. Post.*, B13) [*Commentary Tradition: Philoponus and Themistius, and/or Another Source*]

This passage has a number of interesting lexical remarks, with some philosophical relevance. Avicenna introduces the view of some *mufasssīrūna* and then describes how “the translator” (*al-mutarjim*) explains the meaning of an expression by pointing out the difference between the Arabic locution and its Greek counterpart. What is at stake in the example is the definition of a line, which, however, is not given in the corresponding passage of Aristotle’s text. This suggests that the term ‘translator’ here is unlikely to refer to (one of) the translator(s) of the *Posterior Analytics*, but should rather be taken to stand for the translator of a commentary. Neither Mattā nor the anonymous translation (*via* Gerard of Cremona: the Arabic is not extant for this passage) have such locutions in the text.

The explicit definition of a line is given, by contrast, in the commentaries of both Themistius and Philoponus (as “a breadthless length”). The whole discussion, both in Themistius and in Philoponus, clearly follows the same line of thought that we find here in Avicenna.

In Avicenna, however, there is also an additional example, i.e. the case of quality and colour (which suggests that Eichner might be right in arguing in favour of the thesis that Avicenna’s text could hint at unknown features of the ancient commentary tradition).

We have yet to hear the last word on this example, but it probably has to do with the Arabic translation of one of the two commentaries, or with yet another commentary: if not Themistius or Philoponus, it must be a tradition familiar with one of them or with a common source.

The above claims will be now argued for one by one in the following textual analysis.

### III. Textual Evidence

Text 1. *Definition of Demonstration* [*An. Post.*, A2—*Burhān*, I,7]

(case ba—translations differ, agreement with Mattā)

#### 1.1. Aristotle

ἀπόδειξιν δὲ λέγω συλλογισμόν ἐπιστεμονικόν. ἐπιστεμονικὸν δὲ λέγω καθ’ ὃν τῷ ἔχειν αὐτὸν ἐπιστάμεθα. (*An. Post.*, A2, 71b17–19)

## 1.2. Abū Bishr Mattā

*wa-a'nī bi-l-burhāni l-qiyāsa l-mu'talifa l-yaqīniya. wa-a'nī bi-l-mu'talifi l-yaqīniyi lladhī na'lamuhū bimā huwa mawjūdun lanā.*<sup>18</sup> (Manṭiq Aristū, II, 313.2)

1.3. Averroes, *Long Commentary*, Lemma<sup>a</sup> (Arabic)

*wa-a'nī bi-l-burhāni l-qiyāsa l-yaqīniya lladhī yu'lamu bihī l-shay'u 'alā mā huwa 'alayhī.* (Sharḥ, 181.21)

1.4. Averroes, *Long Commentary*, Commentum (Arabic)

*wa-qawluhū: "al-yaqīni" huwa qawlun badala qawlibi: "l-qiyāsu lladhī ya'talifu min muqaddamātin yaqīniyatīn."* (Sharḥ, 182.11–12)

## 1.5. Avicenna

*fa-l-burhānu qiyāsun mu'talifun yaqīniyun.*

*wa-qad qīla fī tafsīri hādihā aqwālun. wa-yushbibu allā yakūna l-murādu bi-l-yaqīniyi annahū yaqīniyu l-natījati; fa-innahū idhā kāna yaqīniya l-natījati fa-laysa huwa naḥṣuhū yaqīniyan; wa-in amkana an yuj'ala li-hādihā wajhun mutakallifun law [BDW: wa] tukullifa ju'ila idkbāla "l-mu'talifi" fihī ḥashwan mina l-qawli [BDW: l-maqūli], bal yakfī an yuqāla qiyāsun yaqīniyu l-natījati.*

*wa-yagħlibu 'alā zannī anna l-murāda bi-hādihā "qiyāsun mu'allafun min yaqīniyātīn" wa-anna fī l-lafzi adnā taḥrīfin. fa-l-yaqīniyatū idhā kānat fī l-muqaddamāti kāna dhālika ḥāla l-burhāni min jihati naḥṣibī. wa-idhā kānat fī l-natījati kāna dhālika ḥālahū bi-l-qiyāsi ilā ḡhayrihī. wa-kawnuhū yaqīniya l-muqaddamāti amrun lahū fī dhātihī, fa-huwa awlā an yakūna ma'kbūdhān fī ḥaddihī wa-mu'arriḥan li-ṭabī'atihī.* (Burhān, I, 7, 78.15–79.4)

1.6. Averroes, *Middle Commentary* (Arabic)

*wa-l-burhānu bi-l-jumlati huwa qiyāsun yaqīniyun yufidu 'ilma l-shay'i 'alā mā huwa 'alayhī fī l-wujūdi bi-l-'illati llati huwa bihā mawjūdun.*

(Talkhīs, 49.10–11)

<sup>18</sup> Note that in the Paris manuscript *'ilmī* is recorded as a variant in an interlinear gloss above *yaqīni* (see text 1.8 in the Latin translation of Averroes).

1.7. Averroes, *Middle Commentary* (Burana)

Demonstratio autem in summa est **sylogismus verus** faciens acquirere scientiam de re secundum quod ipsi inest causa. (Giuntina, MC, 2<sup>v</sup> D)

1.8. Averroes, *Long Commentary*, Lemma<sup>a</sup> (Latin)

Demonstrationem vero dico **sylogismus scientialem**.<sup>19</sup> (Giuntina, LC, 29<sup>f</sup> B)

1.9. Averroes, *Long Commentary*, Lemma<sup>b</sup> and Commentum (Mantino)

Intelligo autem demonstrationem **sylogismus verum**, quo res eo modo, quo est, cognoscitur [...] et id quod dixit “veracem” est loco dicendi “**sylogismus qui componitur** ex praemissis veris.” (Giuntina, LC, 29<sup>f</sup> B–30<sup>f</sup> A)

1.10. Averroes, *Long Commentary*, Lemma<sup>b</sup> and Commentum (Burana)

Volo autem per demonstrationem **sylogismus verum**, per quem cognoscimus rem, (secundum) quod de ipsa aliquid [...] cum autem dixit “verus” idem est ac si diceret **sylogismus compositus** ex propositionibus veris. (Giuntina, LC, 29<sup>f</sup> C–30<sup>f</sup> A)

1.11. Averroes, *Long Commentary*, Lemma<sup>b</sup> and Commentum (Balmes)

Intendo autem per demonstrationem **sylogismus veracem**, quo res scitur secundum quod est [...] et dum dicit “verus” intelligit **sylogismus qui ex veris constat** premissis. (Giuntina, LC, 29<sup>f</sup> C–30<sup>f</sup> A)

1.12. Gerard of Cremona (Latin Translation of *An. Post.*)

Per demonstrationem vero significo **sillogismus compositum** veridicum quo scitur res secundum quod ipsa est. (*AnPGC*, 5.26–27)

## 1.13. Themistius (Latin)

Demonstratio non est nisi **sylogismus compositus** necessario creditus. (*TPL*, 247.37)

## 1.14. Themistius (Greek)

ἀπόδειξις γὰρ ἐστὶ συλλογισμὸς ἐπιστεμονικός. (*TPG*, CAG, 5.17)

<sup>19</sup>) See above, text 1.2 and f. 18.

### Analysis

In this passage Avicenna seems to depend on Mattā's translation because he discusses a terminological issue that is understandable only with respect to that text and not to the one that is preserved in the anonymous translation. The definition of demonstration as a *qiyās mu'talif yaqīnī* occurs explicitly only in Mattā. Avicenna seems uncomfortable with the use of the expression *mu'talif*, against which he would have preferred *mu'allaf*.<sup>20</sup> In his opinion this latter term would convey with more accuracy the sense of the definition: demonstration is a syllogism composed of premises that are certain, as he himself explains in the exegesis. The fact Avicenna takes *yaqīnī* to refer to the premises of a demonstration, not to its conclusion, accounts in a better way for the presence of *mu'talif*, whose inclusion in the definition otherwise would be, according to him, only a superfluous addition.

What is more, he considers the expression as a corruption or as an improper term. In the anonymous translation we find no counterpart to *mu'talif* in the Arabic transmitted by Lemma<sup>a</sup> in Averroes' *Sharḥ*. The form *i'talafa* does occur in Averroes' commentary with the same sense of *mu'allaf*, but it does not seem to derive directly from the translation of the Aristotelian text he is commenting upon. Avicenna's discussion would not make much sense if he were simply to rely on the anonymous text as we find it in the lemma of Averroes' *Sharḥ* because it does not contain anything close to the definition that he intends to emend.<sup>21</sup> If the anonymous translation is faithfully reflected by the text of Lemma<sup>a</sup>, neither *mu'talif* nor *mu'allaf* can be derived from it.

Interestingly, the locution *mu'allaf*, which Avicenna would expect to occur in the definition of demonstration, is possibly witnessed by the corresponding

<sup>20</sup> On the use and meaning of the somewhat odd locution *mu'talif* see D. Black, "Knowledge (*'ilm*) and Certitude (*yaqīn*) in al-Fārābī's Epistemology," *Arabic Sciences and Philosophy* 16 (2006): 14, f. 5 (where the term, however, is read as *mu'talaf*). Black suggests that the term might count as a way to mirror in the Arabic the sense conveyed by the root of the Greek word *συλλογισμός* and regards the qualification *mu'talaf* as a lexical device to distinguish the use of *qiyās* in the context of logic and philosophy from its *kalām* counterpart. Another (I think less convincing) reading of this definition is found in J. McGinnis, "Avicenna's Naturalized Epistemology and Scientific Method," in *The Unity of Science in the Arabic Tradition: Science, Logic, Epistemology and their Interactions*, edited by S. Rahman, T. Street and H. Tahiri (Berlin: Springer, 2008): 132, where the whole expression is taken to mean "syllogism constituting (for *mu'talif*?) certainty."

<sup>21</sup> Minio-Palluelo provides, I believe, good arguments to reject the hypothetical objection that the lemmata (as is often the case in the commentary tradition) could have been a later insertion and should not necessarily be regarded as the very same text that the Commentator was looking at. At least in the case of the *Long Commentary* on Aristotle's *Posterior Analytics*, the text of the lemmata is probably the one Averroes was working on, see Minio-Palluelo, "Note sull' Aristotele latino," 117–118.

Latin term in Gerard of Cremona's translation where we find the word *compositus*, although nothing excludes in principle that the Arabic text that Gerard was translating already had *mu'talif* instead of the—perhaps more natural—*mu'allaf*. The Latin translation of Themistius' paraphrasis, which is known to derive from the Arabic and is also by Gerard, has the very same term *compositus*. Averroes' *Middle Commentary*, which usually shows a strong dependence on the anonymous translation (as opposed to Mattā),<sup>22</sup> does not have either *mu'talif* or *mu'allaf*.<sup>23</sup>

## Text 2. *Taxonomy of Scientific Enquiries* [*An. Post.*, B1—*Burbān*, IV,1]

(case bb—translations differ, agreement with the anonymous text)

### 2.1. Aristotle

Τὰ ζητούμενά ἐστιν ἴσα τὸν ἀριθμὸν ὅσαπερ ἐπιστάμεθα. ζητούμεν δὲ τέτταρα, [1] τὸ ὅτι, [2] τὸ διότι, [3] εἰ ἔστι, [4] τί ἔστιν. (*An. Post.*, B1, 89b23–25)

### 2.2. Abū Bishr Mattā

*al-ashyā'u llatī tuṭlabu (wa-hiya) jamī'u l-ashyā'i llatī na'lamuhā hiya mutasāwiyatun. wa-l-ashyā'u llatī naṭlubuhā hiya arba'atun: aḥaduhumā [1] annahū yūjadu; wa-l-ākharu [2] li-mādhā; [3] in kāna mawjūdan; [4] wa-mā huwa.*  
(*Manṭiq Aristū*, II, 407.8–10)

[Marginal gloss (2)]

*al-ashyā'u l-maṭlūbatu, minhā mufradatun, wa-minhā mu'allafatun: fa-l-mufradatu mithla Suqrāṭa, wa-hādhā l-ḥimāri. wa-l-mu'allafatu mithla qawlinā: l-shamsu tankasifu. fa-l-mufradatu yuṭlabu min amrihā: hal hiya? thumma: mā hiya? wa-l-mu'allafatu yuṭlabu min amrihā: hal hādhā mawjūdan li-hādhā? thumma: limā šāra hādhā mawjūdan li-hādhā? fa-l-ashyā'u idhan allatī tuṭlabu hiya arba'atun: [3] **hal huwa**; [4] **wa-mā huwa**; [1] **wa-hal hādhā mawjūdan li-hādhā**; [2] **wa-limā hādhā li-hādhā**.*  
(*Manṭiq Aristū*, II, 407, f. 2)

### 2.3. Averroes, *Long Commentary*, Lemma<sup>a</sup> (Arabic)

Not extant

<sup>22</sup> Again, see Minio-Paluello, “Note sull' Aristotele latino,” 118–120.

<sup>23</sup> Averroes, however, does have the inflected verb *i'talafa* (*ya'talifu*) in the *Long Commentary*, clearly with the meaning of “composed,” with which the term is attested, see *GALex*, 294–295.

## 2.4. Avicenna

*al-maṭālību wa-l-ma'lūmātu bi-l-ṭalabi mutasāwiyatun [...] fa-innahā [...] arba'a-tun: ithnāni dākhilāni fi l-hali—abadubumā [3] hal yūjadu l-shay'u, ay 'alā l-iṭlāqi—wa-l-thāni [1] hal yūjadu l-shay'u shay'an? mithla annahū hal yūjadu l-jinsu murakkaban min ajzā'in ghayri mutajazzi'atin. wa-kullu wāḥidin min maṭlabay l-hali yatba'uhū maṭlabu [2] l-limā wa-yattaṣilu bi-dhālika maṭlabu [4] l-mā. wa-ammā maṭlabu l-ayyi fa-mina l-tawābi'i li-maṭlabi l-mā. [...] wa-ammā maṭlabu mā fa-innahū yatba'u l-maṭlaba l-basīṭa min-maṭlabay l-hali tab'an zāhiran [...] wa-yatba'u l-maṭlaba l-murakkaba min maṭlabay l-hali aydan 'alā wajhin mina l-wujūhi.* (Burbān, IV, 1, 261.4–262.3)

2.5. Averroes, *Middle Commentary* (Arabic)

*al-ashyā'u l-maṭlūbatu 'adaduhā bi-'aynibi 'adadu l-ashyā'i l-ma'lūmati [...] wa-l-maṭlūbātu 'adaduhā bi-l-jumlati arba'un: ithnāni murakkabāni, wa-ithnāni basī-ṭāni.*

*fa-l-awwalu mina l-murakkabati huwa an naṭluba: [1] hal hādihā mawjūdun li-hā-dihā? [...] wa-huwa maṭlabu "hal" al-murakkabu. wa-l-maṭlabu l-thāni maṭlabu [2] "limā" kāna hādihā l-shay'u mawjūdan li-hādihā? [...] fa-hādihāni humā l-maṭla-bāni l-murakkabāni.*

*fa-ammā l-maṭlūbāni l-mufradāni, fa-abadubumā huwa [3] ṭalabu wujūdi l-shay'i 'alā l-iṭlāqi lā bi-hālin mā. wa-l-maṭlūbu l-mufradu mithla an naṭluba: hal al-khalā'u mawjūdun, aw ghayru mawjūdin? wa-l-ṭalabu l-thāni huwa lladhī naltami-subhū ba'da ma'rifati hādihā l-ṭalabi fibi, wa-huwa ṭalabu [4] mā huwa hādihā l-shay'u lladhī tabayyana wujūdubū.* (Talkhīs, 119.6–120.2)

2.6. Averroes, *Middle Commentary* (Burana)

Quod quaesitorum est idem numerus cum iis quae sciuntur, et hoc quoniam nos utique scimus ad ultimum ea quae quaeruntur. Et quaesita in summa sunt numero quatuor, **duo composita** et **duo simplicia**. Et prius quidem compositorum est, ut quaeramus [1] **an hoc insit huic** [...] quaesitum vero secundum est [2] **quare hoc insit huic** [...] Quaesita vero **separata** [note the Arabic *mufradāni*] ea sunt [3] quorum unum quaerit **existentiam rei non in aliquo** [...] Quaesitum vero secundum est per quod quaerimus scientiam quaesiti huius et est quaestio [4] **quid est hoc**. (Giuntina, MC, 25<sup>r</sup> A–B)

2.7. Averroes, *Long Commentary*, Lemma<sup>a</sup> (Latin)

Quae quaeruntur sunt aequalia numero iis quaecumque scimus. Quaerimus autem quatuor, [1] **quod**, [2] **propter quid**, [3] **si est**, [4] **quid est**. (Giuntina, LC, 401<sup>r</sup> C)

2.8. Averroes, *Long Commentary*, Lemma<sup>b</sup> (Burana)

Ea quae quaerimus et ea quae scimus sunt aequalia: quae vero quaerimus sunt quatuor, quorum unum est [1] **quod est**, et secundum [2] **propter quid hoc**, [3] **si est**, et [4] **quid est**.  
(*Giuntina, LC, 401<sup>r</sup> C–401<sup>v</sup> D*)

2.9. Averroes, *Long Commentary*, Commentum (Burana)

Enuntiavit species quaestionis et dixit quod sunt quatuor: quarum una est [1] **quod est**, et altera [2] **propter quid hoc**, [3] **si est** et [4] **quid est**.

Et si res sit quemadmodum cecidit **in hac translatione** oportet quod intelligatur **sermo ipsius “si est”** quod sunt **due species**, si est ita in hoc, et si est simpliciter [...] [3] **si est res** aut [1] **si est cum tali dispositione**.  
(*Giuntina, LC, 402<sup>r</sup> B*)

2.10. Averroes, *Long Commentary*, Lemma<sup>b</sup> (Balmes)

Res quae quaeruntur et res quas scimus coequantur. Res autem quas quaerimus sunt quatuor. Quarum una est [1] **utrum sit** et altera [2] **cur sit** et [3] **an sit** et [4] **quid sit**.  
(*Giuntina, LC, 401<sup>r</sup> C–401<sup>v</sup> D*)

2.11. Averroes, *Long Commentary*, Commentum (Balmes)

Enuntiavit quaesitorum species et dixit quod sint quatuor: quorum unum est [1] **utrum sit**, et alterum [2] **cur sit**, [3] **an sit** aut [4] **quid sit**.

Et si res sit prout cecidit **in hac traductione** expedit **eius dictum** intelligere, **“utrum sit” esse duarum specierum**, utrum sit sic talis et an sit simpliciter; et per haec duo fiunt quaesita quatuor: **ambo enim quaeruntur adverbio utrum**, ut [3] **utrum res sit** aut [1] **utrum sit talis**.  
(*Giuntina, LC, 402<sup>r</sup> B*)

2.12. Gerard of Cremona (Latin Translation of *An. Post.*)

Res quas quaerimus et res quas scimus sunt res una eadem numero. Et quaestionum quidem numerus est quatuor; quarum una est [1] **an hoc insit huic**, et secunda [2] **quare istud insit huic**, et tertia [3] **an hoc sit**, et quarta [4] **quid est hoc**.  
(*AnPGC, 64*)

## Analysis

The passage is taken from *Burhān*, IV, 1, which corresponds in its entirety to *An. Post.*, B1–3. The context that concerns us here in particular is the discussion of the number and types of scientific enquiries in B1. Avicenna gives a list that, in terms of content, is conceptually the same as the one we find in Aristotle

but whose terminology departs from the latter in one relevant case. The four questions are formulated in different ways in Mattā's text (which is closer to Aristotle) and in the anonymous translation, which for this particular portion of the text can be reconstructed from Gerard of Cremona's Latin version and from the Latin translations of Averroes' commentaries. Here Avicenna seems to be following the anonymous translation.

He presents the four questions and discusses, along Aristotelian lines, their mutual relationships with respect to the properties of middle terms involved in demonstrative syllogisms. His own vocabulary preserves the *what-* and *why-*questions, but characterizes the other two questions as *if-*questions (both in the existential case [3] and in the predicative case [1]). A fundamental distinction in the Aristotelian framework is the one between the question whether something *is* (i.e. *if* it exists absolutely) and the question whether something *is something else* (i.e. *that* something is something else, a case of predication). Both questions are labelled by Avicenna under the heading of *if-*questions (*hal basīt* and *hal murakkab*, respectively). The same terminology occurs in the anonymous translation indirectly transmitted by Gerard of Cremona's Latin text. Unfortunately, in this case we cannot make comparisons with the Arabic text of the corresponding lemmata and of the commentaries thereupon from the *Long Commentary*, because this portion of the original is not extant. But we do have valuable remarks from the Latin translations. Averroes, in particular, is aware of the existence of an alternative terminology (as opposed to the one that he receives from Mattā) in the other translation. The same terminology is found in Averroes' *Talkhīṣ*, where the Aristotelian distinction between the *if-*question (existence) and the *that-*question (predication) is formulated in terms of *simple if* (*hal basīt*) and *compound if* (*hal murakkab*), i.e. exactly in the same way as in Avicenna. The terminology of the *Middle Commentary* is known to derive from the anonymous translation, and not from Mattā.

It should be noted that there are two other places where the terminology found in Avicenna (and Averroes) is attested in a similar, albeit not identical form: (1) a gloss to Mattā's translation in the *Parisinus* formulates the Aristotelian *if-* and *that-*questions in terms of *simple if-* and *compound if-*questions, making use of the locutions *hal mufrad* and *hal mu'allaf* to characterize them; (2) al-Fārābī, in his *Kitāb al-Ḥurūf*,<sup>24</sup> makes also use of *hal* to characterize both the existential and the predicative case.

To explain where Avicenna might have taken his terminology from we have therefore two main alternatives. A first, natural hypothesis, is that he takes it

<sup>24</sup>) This point was brought to my attention by S. Menn, "al-Fārābī's *Kitāb al-Ḥurūf* and his Analysis of the Senses of Being," *Arabic Sciences and Philosophy* 18 (2008): 84–90. Cf. Al-Fārābī, *Kitāb al-Ḥurūf*, edited by M. Mahdi, Beirut: Dār al-Mashriq 1969), III, 228–231.



directly from the anonymous translation (the claim is reinforced by the fact that the terminology in Averroes' *Talkhīṣ*, which in turn depends on the anonymous translation, is identical with that of Avicenna's *Burhān*). Otherwise, we should hypothesize that Avicenna was acquainted either with the gloss to Mattā's text, or with Fārābī's terminology or with yet another source that was connected to one of the latter.<sup>25</sup>

One last remark is in order. The differences in terminology used to present the taxonomy of scientific inquiries are also regarded by Minio-Paluello as an example of the agreement between the text of the *Middle Commentary* and the text translated by Gerard, as opposed to the case of the agreement between the text found in the *Long Commentary* and Mattā's translation.<sup>26</sup> In the context of his argument, Minio suggests that the formulation in terms of a double *if* might depend on a misreading in the anonymous tradition in which a *anna* has been mistakenly taken for a *in*. This claim, however, should be rejected. We have independent evidence that the opposition between the two *ifs* is genuine and does not derive from a misreading of *anna* in favour of *in*: indeed such evidence is provided by the fact that the gloss, Fārābī, Avicenna and Averroes himself (in the *Middle Commentary*) all spell out the distinction of the two questions by using the word *hal* (*basīṭ/mufrad* vs *murakkab/mu'allaf*).

Text 3. *Terminological Distinction (in parte vs simpliciter/in totum)* [*An. Post.*, B2—*Burhān*, IV,1]

(case bc with problems—translations differ, agreement with neither; agreement with Burana)

### 3.1. Aristotle

ὅταν δὲ γρόντες ἢ τὸ ὅτι ἢ εἰ ἔστιν, ἢ [1] τὸ ἐπὶ μέρους ἢ [2] τὸ ἀπλῶς, πάλιν τὸ διὰ τί ζητῶμεν ἢ τὸ τί ἔστι, τότε ζητούμεν τί τὸ μέσον. λέγω δὲ τὸ ὅτι ἔστιν ἐπὶ μέρους καὶ ἀπλῶς.  
(*An. Post.*, B2, 89b38–90a2.)

### 3.2. Abū Bishr Mattā

*wa-matā 'alimnā immā annabū yūjadu aw annabū maujūdun, immā* [1] *bi-l-juz'i wa-immā* [2] *'alā l-iṭlāqī, wa-ṭalabnā mina l-ra'si: limā huwa? aw: mā huwa? fa-ṭalabunā ḥīnā'idbin innamā huwa an yuṭlaba mā huwa l-awsaṭu. wa-a'nī bi-qawli*

<sup>25</sup>) More complex combinations of circumstances should in fact be taken into account, but it is hard, at the present stage, to make conjectures about a hypothetical network of reciprocal influences involving the gloss(es), Fārābī, and the anonymous translation.

<sup>26</sup>) See Minio-Paluello, "Note sull' Aristotele latino," 118.

*innabū yūjadu bi-l-juz'i (wa-)'alā l-iṭlāqi: ammā bi-l-juz'i fa-an yuṭlaba: a turā yaq-balū l-qamaru kusūfan? a'nī 'adama l-nūri, aw yatazayyadu tazayyudan. wa-dbālika anna talabanā fī amtbāli hādhibi immā anna l-shay'a mawjūdu aw ghayru mawjūdin. ammā 'alā l-iṭlāqi fa-huwa an naṭluba in kāna mawjūdan aw ghayra mawjūdin al-qamaru wa-l-laylu.* (Mantiq Aristū, II, 409.5–11)

### 3.3. Averroes, *Long Commentary*, Lemma<sup>a</sup> (Arabic)

Not extant

### 3.4. Avicenna

*fa-qawlu l-mu'allimi l-awwali [1] "l-mawjūdu bi-l-juz'i" ya'nī bibī [om. 'Affi] l-mawjūda shay'an mā. wa-[2] "l-mawjūdu bi-l-kulli" ya'nī bibī l-mawjūda 'alā l-iṭlāqi. wa-l-mawjūdu shay'an mā immā shay'an jawhariyan li-l-mawdū'i, aw 'aradan dhātīyan aw 'aradan khārijīyan.* (Burbān, IV, 1, 263.12–14)

### 3.5. Averroes, *Middle Commentary* (Arabic and Latin)

The corresponding passage does not discuss the terminological problem under consideration.

### 3.6. Averroes, *Long Commentary*, Lemma<sup>a</sup> (Latin)

Quando autem cognoscentes aut quod aut si est, aut quod **in parte** aut **simpliciter**, rursus ipsum propter quid quaeremus aut quid est et tunc quaerimus quid est medium. (Giuntina, LC, 403<sup>v</sup> D)

### 3.7. Averroes, *Long Commentary*, Lemma<sup>b</sup> (Burana)

Cumque quaerimus si est aut non est simpliciter quaerimus utique an videas quod sit aliquod medium ipsius aut non.

Cumque sciverimus si erit, aut si est, aut **in parte** aut **in totum** quaerimus de quaesito propter quid et quid est; quaestio utique nostra est ut quaeramus quid est terminus medius. (Giuntina, LC, 403<sup>v</sup> E)

### 3.8. Averroes, *Long Commentary*, Commentum (Burana)

Hoc est quod significavit cum dixit "cumque sciverimus quod est vel quod est aut **in parte** aut **simpliciter**, quaerimus de quaesito propter quid est aut quid est." (Giuntina, LC, 404<sup>v</sup> F)

3.9. Averroes, *Long Commentary*, Lemma<sup>b</sup> (Balmes)

Quando autem quaerimus an sit aut non sit simpliciter, quaerimus numquid eius sit aliqua res media, necne. Et quando sciverimus quod erit aut sit **secundum partem** aut **simpliciter**, ulterius quaerimus ab initio cur sit et quid sit, et tunc quaerimus quid est illud medium. (Giuntina, *LC*, 403<sup>v</sup> E)

3.10. Averroes, *Long Commentary*, Commentum (Balmes)

Et hoc significavit quando dixit “et quando sciverimus quod erit aut sit **secundum partem** aut **simpliciter** ulterius quaerimus ab initio cur sit et quid sit.” (Giuntina, *LC*, 404<sup>v</sup> F)

3.11. Averroes, *Long Commentary*, Lemma<sup>a</sup> (Latin)<sup>27</sup>

Dico autem quod aut si est **in parte** et **simpliciter**, in parte quidem, an deficit luna aut augetur. Si enim est aliquid aut non est aliquid in talibus quaerimus; simpliciter vero si est aut non est luna aut nox. (Giuntina, *LC*, 405<sup>r</sup> A)

3.12. Averroes, *Long Commentary*, Lemma<sup>b</sup> (Burana)

Et intelligo, cum dico quod est **in parte** et **simpliciter**, in parte quidem cum quaeritur an suscipiat luna defectum, hoc est privatione luminis, aut augetur augmento. Et hoc quoniam quaestio nostra in talibus est an res sit aut non sit; simpliciter vero cum quaerimus si est aut non est luna aut nox. (Giuntina, *LC*, 405<sup>r</sup> B)

3.13. Averroes, *Long Commentary*, Commentum (Burana)

Postquam vocavit quaesitum compositum quod est in parte et vocavit simplex quod est simpliciter, coepit declarare haec nomina. (Giuntina, *LC*, 405<sup>r</sup> C)

3.14. Averroes, *Long Commentary*, Lemma<sup>b</sup> (Balmes)

Intendo autem quando dico “**secundum partem**” aut “**simpliciter**,” secundum partem quidem quia quaeritur “videsne lunam suscipere eclipsim, hoc est luminis defectum, aut crementum?” Nostra enim quaestio de tali est utrum res sit aut non sit; simpliciter autem an luna et nox sit aut non sit. (Giuntina, *LC*, 405<sup>r</sup> B)

<sup>27)</sup> For this text I offer two distinct sets of lemmata and commenta from Averroes’ *Long Commentary*: 3.6–10 and 3.11–15.

3.15. Averroes, *Long Commentary*, Commentum (Balmes)

Postquam vocaverat quaesitum compositum illud quod est secundum partem et simplex quod est simpliciter, coepit explicare nomina. (*Giuntina, LC, 405<sup>r</sup> C*)

3.16. Gerard of Cremona (Latin Translation of *An. Post.*)

Sermo igitur noster “**quaestio composita**” et “**quaestio simplex**.” et composita quidem est sicut quaerimus an eclipsis que est privatio luminis insit lune et an additio insit ei (in hoc enim et huiusmodi non quaeritur nisi an predicatum insit subiecto an non insit ei); simplex autem sicut quaeritur an hec res ipsa sit an non sit, sicut luna et nox. (*AnPGC, 64.1–13*)

## Analysis

The question concerning predicative cases mentioned in the previous passage, i.e. the “if” in the second sense or, as it is also referred to, the compound *if*-question, which is the counterpart of the Aristotelian *that*-question, is labelled by Avicenna with the expression *al-maujūd bi-l-juz’*. This captures the Aristotelian Greek ἐπὶ μέρους. In opposition to this way of characterizing the question of the “if” in which one asks whether something is something else as “in part,” the other question, by means of which one asks whether something exists or not absolutely, is called a simple *if*-question or absolute question of the “if.” The opposition ἐπὶ μέρους vs ἀπλῶς is matched in Mattā’s Arabic by the pair *bi-l-juz’* vs *‘alā l-iṭlāq*. Thus, ἐπὶ μέρους stands to ἀπλῶς just as *bi-l-juz’* stands to *‘alā l-iṭlāq*. In Avicenna’s *Burbān*, however, in the analysis of this particular passage one element is formulated in quite a different way. Although the opposition is still understood in terms of absolute existence vs characterization of something by means of predication, the terminology adopted by Avicenna is *bi-l-juz’* vs *bi-l-kull*.

The terminology in Averroes is the same as in Mattā, if we look at Lemmata<sup>a</sup> preserved by the Latin translation of the *Long Commentary*, but in one Lemma<sup>b</sup> the opposition *in parte* vs *in totum* does occur once (see 3.7) in the translation by Burana (not in the one by Balmes, which consistently has the standard *in parte* vs *simpliciter* distinction throughout). The locution seems to be immediately forgotten in favour of *simpliciter*, so that *in totum* is no longer found even in Burana’s translations of other texts where the terms in question are involved (see 3.8, 3.12, 3.13). Both translations are known to derive from the Hebrew version by Qalonymos b. Qalonymos (early XIVth century), but the circumstances of the transmission might turn out to be more complex than they were thought to be. In the *Middle Commentary* we find no trace of the distinction.

The use of *bi-l-kull* in the opposition between *bi-l-juz'* and *bi-l-kull*, which Avicenna clearly has before him, might therefore derive from a source that resurfaces again (in a way which is yet to be understood) in Averroes' *Long Commentary* as is witnessed by one of its Latin translations. Since Avicenna shares the expression with Burana's Latin translation, this variant can hardly be dismissed as an innovation occurring accidentally in both of them at the same time.

Text 4. *Themistius [An. Post., B15—Burbān, IV,8] (Knowledge of Themistius' Paraphrasis)*

#### 4.1. Plato

ἔτι δὲ τὰ τῶν κεραυνῶν πτώματα καὶ θαυμαζόμενα ἢ ἠλέκτρων περὶ τῆς ἑλξεως καὶ τῶν Ἑρακλείων λίθων, πάντων τούτων ὀλκή μὲν οὐκ ἔστιν οὐδενὶ ποτε. (*Timaeus*, 80c)

#### 4.2. Avicenna

*wa-'inda Flātūna jadhaba l-mighnāfisu wa-l-kabrabā'u wa-l-mihjamatu saba-buhū shay'un wāḥidun wa-huwa ntiqālu l-hawā'i fa-yatba'uhū ntiqālu mā huwa fihī.*  
(*Burbān*, IV, 8, 319.11–13)

#### 4.3. Themistius (Greek)

οἶον διὰ τί ἡ λίθος ἢ μαγνήτις ἔλκει καὶ τὸ ἠλεκτρον καὶ ἡ σικυῖα; πάντων γὰρ τὸ αὐτὸ μέσον τε καὶ αἴτιον, ἢ ἀντιπερίστασις, ὡς φησὶ Πλάτων. (*TPG, CAG*, 60.1–2)

#### 4.4. Themistius (Latin)

Cuius exemplum est ut dicatur quare **magnetes lapis attrahit ferrum et karabe et ventosa**. Medium enim et causa in istis quaestionibus sunt unum et idem in **sermone Platonis** et est permutatio aeris. (*TPL*, 309.5–6)

### Analysis

This passage counts as a piece of evidence in support of the thesis that Avicenna was directly acquainted with Themistius' paraphrasis. The reference occurs only in Themistius and in Avicenna, who both mention Plato by name and offer the magnet and amber examples. No parallel is to be found in the corresponding passage of *An. Post.*, B15, 98a30 where the examples given are different. The same holds in the case of Averroes, who does not have this terminology either in the *Long Commentary* or in the *Middle Commentary*.

The reference to Plato is correct and goes back to *Timaeus*, 80c.<sup>28</sup>

Text 5. *Philoponus* [*An. Post.*, B16—*Burhān*, IV, 8] (*Knowledge of Philoponus' Commentary*)

### 5.1. Aristotle

Περὶ δ' αἰτίου καὶ οὐ αἴτιον ἀπορήσειε μὲν ἂν τις, ἄρα ὅτε ὑπαρχει τὸ αἰτιατόν, καὶ τὸ αἴτιον ὑπάρχει (ὡσπερ εἰ φυλλορροεῖ [...] τὸ αἴτιον τοῦ [...] φυλλορροεῖν ἔσται· οἶον εἰ τοῦτ' ἔστι τὸ πλατέα ἔχειν τὰ φύλλα) (*An. Post.* B16, 98a35–98b1)

[...] οἶον εἰ πλατύφυλλον, φυλλορροεῖ (ibid., 98b3–4)

[...] οἶον διὰ τί τὰ δένδρα φυλλορροεῖ; εἰ δὴ διὰ πῆξιν τοῦ ὕγρου, εἴτε φυλλορροεῖ δένδρον, δεῖ ὑπάρχειν πῆξιν, εἴτε πῆξις ὑπάρχει, μὴ ὅτῳ οὖν ἀλλὰ δένδρω φυλλορροεῖν. (ibid., 98b36–38)

### 5.2. Abū Bishr Mattā

*wa-ammā fi l-'illati, wa-l-shay'i lladhī l-'illatu 'illatubū, wa-l-shay'u lladhī l-'illatu lahū, fa-qad yatashakkaku l-insānu fa-yaqūlu: a turā matā wujida l-ma'lūlu fa-l-'illatu aydan mawjūdātun mithla annahū in kāna yanthiru waraqatun [...] fa-qad tūjadu layta shi'ri [...] 'illatu intithāri l-waraqī—mithālu dhālika in kānat hādhibi l-'illatu hiya an yakūna waraqubū 'arīdan* (*Manṭiq Aristū*, II, 454.12–455.3)

[...] *mithla annahū [...] in kāna waraqubū 'arīdan fa-yanthiru waraqubū* (ibid., 455.5–6)

*mithālu dhālika: limā šāra l-shajaru yanthiru waraqubū?—in kāna dhālika li-n-'iqādi l-ruṭūbati, fa-qad yajibū in natharat l-shajaru waraqubā an yūjada n-'iqādu l-ruṭūbati, wa-in wujida l-in-'iqādu lā li-kulli mā ttafaqa, lākinna li-l-shajari lladhī yanthiru waraqubū.* (ibid., 457.11–458.2)

### 5.3. Avicenna

*wa-mithla kawni l-waraqī 'arīdan li-ntithārihī, fa-innahū sababun musawin li-l-intithāri wa-in kāna ba'īdan, wa-l-qaribu huwa sur'atu nqishāshī l-ruṭūbati l-māsikati, wa-huwa aydan musawin, fa-yumkinu an yubayyana l-'illatu bi-l-ma'lūli aydan kamā yubayyana l-ma'lūli bi-l-'illati wa-yaširu l-bayānu dawran. fa-innahū in shi'nā qulnā inna [...] hādhibi l-shajarata 'arīdatu l-waraqī fa-yanthiru waraqubā, wa-hādhibi l-shajaratu ntathara waraqubū fa-biya 'arīdatu l-waraqī.* (*Burhān*, IV, 8, 320.9–14)

<sup>28</sup> See Plato, *Timaeus*, 80c, in *Platonis Opera*, edited by J. Burnet, Vol. 8 (Oxford: Oxford University Press, 1903).

## 5.4. Philoponus (Greek)

καὶ πάλιν τοῦ τὴν ἄμπελον φυλλορροεῖν αἴτιον ἐστὶ τὸ πηγνυσθαι τὸ ἐν τῷ ὀχάνῳ ὑγρὸν ... τοῦτο γοῦν τὸ παράδειγμα κρείττον ἐστὶ τοῦ τεθέντος παραδείγματος κατὰ λήθην ἐπὶ τοῦ πυρός. ὄντος μὲν οὖν τοῦ αἰτίου, ἤγουν τοῦ πηγνυσθαι τὸ ἐν τῷ ὀχάνῳ ὑγρὸν, ἐξ ἀνάγκης ἔπεται καὶ τὸ τὰ δένδρα φυλλορροεῖν, ὃ ἐστὶν αἰτιατόν. ὄντος δὲ τοῦ τὰ δένδρα φυλλορροεῖν οὐκ ἐξ ἀνάγκης ἐστὶν ὃ ὑπετέθη αἴτιον, ἤγουν ἢ τοῦ ὑγροῦ πῆξις, ἀλλ' ἐστὶ τι ἕτερον αἴτιον, τὸ πλατύφυλλον, ἔτι τὸ ῥυτιδοῦσθαι τὰ φύλλα. εἰ γοῦν τὸ τὰ δένδρα φυλλορροεῖν δείκνυται καὶ διὰ τοῦ πηγνυσθαι τὸ ὑγρὸν καὶ ῥυτιδοῦσθαι τὰ φύλλα, λοιπὸν ἄρα τοῦτο ἀπόδειξις οὐκ ἐστὶ.<sup>29</sup> (PCG, CAG, 412.10–19)

## Analysis

The passage speaks in favour of Avicenna's direct acquaintance with Philoponus' commentary. I have already discussed above one example (see f. 17) that goes along similar lines, and will present and discuss a more problematic case in the following Text 6. I regard the present case as an additional independent proof. The relevant factor is the terminology employed in the example, where Aristotle is discussing a situation in which several things could be taken to be the cause of one and the same fact (here: the deciduousness of certain plants). The cause of a plant's shedding its leaves, we are told, is the congealing of the moisture in the juncture. The alternative cause mentioned by Aristotle is being "flat-leaved." The "shrivelling" (ῥυτιδοῦσθαι, *inqishāsh*) is mentioned only in Philoponus and Avicenna.

In Averroes the situation is curious. In the *Long Commentary*, Lemma<sup>a</sup> has roughly the same text as Aristotle. But the two Latin translations of Lemma<sup>b</sup> make some confusion. Instead of "being flat [wide]-leaved" the term used is "frondium ariditas" (Balmes), maybe as a result of the similarity in sound with the Arabic *'arīḍu l-waraqī*, and "siccitas foliorum" (Burana), with transposed meaning from one Latin term (*ariditas*) to the other (*siccitas*). Furthermore, in Balmes we have "causa autem quae est ipsum medium est quod vinea sit arida (!) [i.e. "dry," not "wide" as the Arabic *'arīḍ* would suggest) frondibus" (*Giuntina, LC, 536<sup>f</sup> C*); and in Burana we find just the same error "et causa, quae est medium, est quoniam vitis est siccum foliis" (*Giuntina, LC, 536<sup>f</sup> C*).

<sup>29</sup>) "And, again, a cause of [the fact] that a vine sheds its leaves is the thickening of the moisture in the juncture [...] So when there is the cause, namely the congealing of the moisture in the juncture, there necessarily also follows [the fact] that the tree sheds its leaves, which is the effect. But when there is the shedding of the leaves of the trees, there is no necessity that there is what he supposed as the cause, namely the congealing of the moisture, but there will be some other cause, being flat-leaved, and besides that, the **shrivelling** of the leaves. So if it is proven that trees shed their leaves because of both the congealing of the moisture and the **shrivelling** of the leaves, it therefore follows that this is not a demonstration," see Philoponus (?), *On Aristotle*, 121).

Text 6. *Gloss on Philoponus [An. Post., A13—Burhān, III, 3] (Gloss—Knowledge of Philoponus or of a Source in the Commentary Tradition Deriving from or Familiar with the Baghdādī Glosses that are Transmitted in the Parisinus along with Mattā’s Translation)*

### 6.1. Aristotle

Ἐτι ἐφ’ ὧν τὸ μέσον ἔξω τίθεται. καὶ γὰρ ἐν τούτοις τοῦ ὅτι καὶ οὐ τοῦ διότι ἢ ἀπόδειξις. οὐ γὰρ λέγεται τὸ αἴτιον. (An. Post., A13, 78b14–15)

### 6.2. Abū Bishr Mattā

*wa-aydan fi l-ashyā’i llati tūda’u l-awsātu fibā khārijan fa-inna fi hādhibi aydan innamā yakūnu l-burhānu ‘alā “anna” [for unni] l-shay’a lā ‘alā “limā huwa” idh kāna lā yukhbiru bi-l-illati nafsihā.* (Manṭiq Aristū, II, 350.16–351.1)

### 6.3. Averroes, Long Commentary, Lemma<sup>a</sup> (Arabic)

*wa-aydan al-barābīnu llati yūda’u l-awsātu fibā khārijan ‘ani l-ṭarfayni, fa-inna hādhibi takūnu l-barābīnu fibā ‘alā “anna” l-shay’a. fa-ammā “limā huwa” fa-lā, idh kāna lam yu’ta bi-l-illati nafsihā.* (Sharḥ, 357.9–10)

### 6.4. Avicenna

*wa-aydan fi l-ashyā’i llati yūda’u l-awsātu [BDW: tūda’u l-awsātu] fibā khārijan: innamā yakūnu l-burhānu ‘alā limā huwa idh kāna ukhbira bi-l-illati nafsihā, fa-in lam yukhbār bihā nafsihā lam yakun burhāna ‘alā limā bal ‘alā an. [See below for the continuation]* (Burhān, III, 3, 204.16–18)

### 6.5. Philoponus (Greek)

τὴν ἀρχὴν μὲν ὁ Ἀλέξανδρος φησιν ὅτι διὰ τούτων τὸ δεύτερον σχῆμα σημαίνει [...] διὸ καὶ ὑπονοήσειεν ἂν τις τὸ “ἔξω τίθεσθαι” τὸν μέσον ὄρον τοῦτο αὐτῷ σημαίνειν [...] ἄλλ’ ὡς καὶ ὁ Ἀλέξανδρος προΐων φησιν, “ἔξω τίθεσθαι” τὸν μέσον λέγει ἀντὶ τοῦ “πορρωτέρω τῆς προσεχοῦς αἰτίας.”<sup>30</sup> (PCG, CAG, 174.4–10)

<sup>30</sup> “To begin with, Alexander says that by this he signifies the second figure [...] This is why someone might suppose that this is what the middle term being placed outside signifies for him [Aristotle]. [But the middle term being placed outside does not signify this for him] but, as Alexander says further down, he says that the middle term is placed outside instead of [saying that it is placed] further from the proximate cause.” I wish to thank Richard McKirahan for sharing with me the translation of this passage right before the publication of Philoponus, *On Aristotle Posterior Analytics 1.9–18*, translated by R. McKirahan (London: Duckworth, 2012) for the ancient



## 6.6. Ibn Suwār's Gloss to Abū Bishr Mattā's Translation

*Abū Yahyā* [al-Marwāzi] *'ani l-Iskandari qāla: yurīdu nizāma l-shakli l-thānī.*

*wa-Yahyā l-Nahwī* [John Philoponus] *yaqūlu: laysa l-amru ka-dhālika, bal innamā yurīdu bihī l-'illata l-ba'īdata.*

*wa-Abū Bisbr* [Mattā] *yazharu min qawlibi annahū yadhbahu ilā l-amrayni jamī'an.*

*wa-ażunnu* [Ibn Suwār] *anna mā qālahū Yahyā l-Nahwī aṣahḥu l-aqāwīli, wa-yashhadu bi-dhālika qawlu l-faylasūfi idh yaqūlu: "idh<sup>31</sup> [for in in Badawī's edition] kāna lā yukhbbaru bi-l-'illati naḥsibā." qāla li l-shaykhu l-fādīlu Yahyā ibn 'Adī: l-haqqu mā qālahū Yahyā l-Nahwī fi dhālika.<sup>32</sup> (Maṭīq Aristū, II, 351, f. 2)*

## 6.7. Avicenna (on the Gloss?)

*ammā lladhī lā yakūnu fihī 'illatun qarībatun fa-qad qīla fi l-ta'limi l-awwali mā bādhā lafẓubū: "wa-aydan fi l-ashyā'i llati yūda'u l-awsaṭu [BDW: tūda'u l-awsaṭu] fihā khārijan: innamā yakūnu l-burhānu 'alā limā huwa idh kāna ukhbīra bi-l-'illati naḥsibā, fa-in lam yukhbbar bihā naḥsibā lam yakun burhāna 'alā limā bal 'alā an." wa-innamā ya'nī bi-l-'illati l-'illata l-qarībata.*

*lākinna qawlahū "l-ashyā'u llati yūda'u l-awsaṭu fihā khārijan" yahtamilu ma'na-yayni: [1] ābaduhumā allā yakūna tartību l-hudūdi 'alā tartibi l-shakli l-awwali bal 'alā tartibi l-thānī mathalan, fa-yakūnu l-haddu l-awsaṭu khārijan wa-lā yakūnu u'tiya l-'illatu l-qarībatu fihī—kamā naqūlu fi l-shakli l-thānī inna l-jidāra lā yata-naffasu li-annahū laysa bi-ḥayawānīn, wa-kullu mutanaffisīn ḥayawānūn. wa-bādhā l-ta'wīlu aẓharu. wa-yakūnu innamā nusiba ilā l-shakli l-thānī li-annahū kamā 'alimta awlā bi-l-salbi. wa-bādhā yaqa'u fi l-barābhīni l-sālibati akthara wa-in kāna qad yaqa'u fi l-mūjibati.*

*fa-ammā [2] l-tafsīru l-thānī—wa-huwa l-aṣwabu wa-in lam yakun al-aẓharu—fa-huwa annahū ya'nī bi-l-awsaṭi l-awsaṭa fi l-qiyāsi wa-l-wujūdi jamī'an, wa-huwa l-'illatu l-qarībatu, 'alā annahā mun'akisatun; wa-yakūnu ma'nā waḍ'ihī khārijan allā yakūna qad ruttiba fi ajzā'i l-qiyāsi [BDW: ajzā'a li-l-qiyāsi] bal turika min khārijīn. (Burhān, III, 3, 204.16–205.6)*

commentators series edited by Richard Sorabji. The book was about to come out when this article was being prepared.

<sup>31</sup>) The emendation, which I take to be correct, is already in Walzer, "New Light," 100.

<sup>32</sup>) "According to Alexander he [Aristotle] means the second figure. But John Philoponus says: it is not like that, he rather means the remote cause. It is clear from Abū Bishr's words that he accepted both interpretations. But I [i.e. Ibn Suwār] believe that John Philoponus' statement is the soundest. In his favour are the words of the philosopher: 'Since (*idh*) he does not give the cause itself.' The excellent Shaikh Yahyā b. 'Adī said to me: 'What John Philoponus said about this passage is right,'" see Walzer, "New Light," 100.

## Analysis

This passage might suggest two different conclusions, which are again compatible with each other, as in the case of text 2 above, but of quite different strength. The first obvious conclusion is that Avicenna is familiar with Philoponus' commentary. The second, less obvious conclusion, is that he might be familiar with Philoponus (at least, although not necessarily only) through the mediation of a famous gloss that accompanies Mattā's translation of the *Posterior Analytics*,<sup>33</sup> in which both the opinion of Alexander of Aphrodisias and that of Philoponus are reported (see Walzer's translation, f. 32). In a difficult passage that has puzzled the interpreters since late Antiquity, Aristotle uses the expression ἐφ' ὧν τὸ μέσον ἔξω τίθεται to identify certain peculiar types of pseudo-demonstrations. How to understand the meaning of the locution, though, has been the object of some debate. An immediate option is that of considering "outside" to refer to the position of the middle term as a predicate, which would yield syllogisms in the second figure. But the real explanation, according to Avicenna, is that the remote cause is being referred to, in agreement with Philoponus.

Text 7. *Mutarjim* [*An. Post.*, B13—*Burbān*, IV,5] (*Commentary Tradition: Philoponus and Themistius, and/or Another Source*)

### 7.1. Aristotle

Χρῆ δέ, ὅταν ὄλον τι πραγματεύηται τις, διελεῖν τὸ γένος εἰς τὰ ἄτομα τῷ εἶδει τὰ πρῶτα, οἷον ἀριθμὸν εἰς τριάδα καὶ δυάδα, εἴθ' οὕτως ἐκείνων ὀρισμοὺς πειρᾶσθαι λαμβάνειν, οἷον εὐθείας γραμμῆς καὶ κύκλου, καὶ ὀρθῆς γωνίας, μετὰ δὲ τοῦτο λαβόντα τί τὸ γένος, οἷον πότερον τῶν ποσῶν ἢ τῶν ποιῶν, τὰ ἴδια πάθη θεωρεῖν διὰ τῶν κοινῶν πρῶτων.

(*An. Post.*, B13, 96b15–21)

### 7.2. Abū Bishr Mattā

*wa-qad yanbaghī, matā qaṣada l-insānu ilā taḥdīdi jumlatin mā wa-kullin, an yuqas-sima l-jinsa ilā ghayri l-mutajazzi'ati l-uwali bi-l-naw'i—mithālu dhālika an yuqas-sima l-'adada ilā l-thulāthiyati wa-l-thunā'iyati; thumma yaltamisū an ya'kbudha ḥudūda ḥādhayni wa-nazā'irihimā—mithālu dhālika ḥaddu l-kbaṭṭi l-mustaqīmi, wa-ḥaddu l-dā'irati, wa-ḥaddu l-zāwiyyati l-qā'imati. thumma ba'da dhālika idhā mā akhadha ayyumā huwa jinsuhū—mithālu dhālika: a turā huwa mina l-kammīyāti aw mina l-kayfiyāti? fal-nanzur ilā lawāzīmihī l-khāṣṣiyati bi-tilka l-umūri l-'ammī-yati awwalan.*

(*Manṭiq Aristū*, II, 443.9–444.4)

<sup>33</sup> The content of the gloss is discussed at some length in Hugonnard-Roche, "Averroes et la tradition," 175–176.

## 7.3. Avicenna

*fa-yajibu an naṭlaba* [BDW: tuṭlaba] *jamī'a l-maḥmulāti llati tuḥmalu 'alaybi* [sc. the genus] *dākhilatan fī mahiyatibi, kānat auwalīyatan aw ghayra auwalīyatin* [labū add. 'Afiḥi]. *fa-hīna'idhin yukbraju laka ḥaddu l-naw'i, wa-ḥaddu jinsihi ma'an bi-suhūlatin.*

*wa-ammā kayfa yukbraju dhālika fa-qad ju'ila mithālu hādihā fī l-ta'limi l-awwali an yu'khabha* [BDW: yūjadu] *l-khaṭṭu l-mustaqīmu wa-khaṭṭu l-dā'irati wa-khaṭṭu l-qaṭ'i l-munḥani wa-khaṭṭu l-zāwiyati, mathalan al-qā'imatu. fa-inna ttiṣāla kulli khaṭṭin bi-khaṭṭin immā 'alā l-istiḳāmati, wa-immā 'alā l-inḥinā'i wa-l-istidārati wa-immā 'alā zāwiyatin.*

*fa-yakūnu l-khaṭṭu l-mustaqīmu yūjadu labū annahū ṭūlun bilā 'arḍin, wa-l-nuqaṭu llati tufrādu fīhi taqa'u bayna nuqṭatay ṭarfayhi 'alā muḥādhātihā kulluhā iyyahumā. wa-l-qausu ṭūlun bilā 'arḍin, wa-yumkinu an tūjada fīhi nuqṭatun kullu l-khaṭṭūti l-mustaqīmati llati takbruju ilayhā minhu takūnu mutasāwīyatan. wa-l-mutaḥad-dibu* [BDW: munjadhib] *'alā zāwiyati ṭūlun bilā 'arḍin yuḥiṭu bi-saḥḥin wa-fīhi nuqṭatun bi-l-fi'li yattaṣilu 'alayhā juz'āhū, fa-idhā ḥudhifa* [BDW: ḥadbafta] *khās-sata* [BDW: khaṣṣiyata] *kulli wāhidatin min hādhibi baqiya mā baqiya* [BDW: yabqā] *mushtarakan wa-kāna ḥaddan li-l-jinsi—wa-huwa annahū ṭūlun bilā 'arḍin.*

*thumma qila fa-rji' ilā l-maḳūlati llati tuqālu 'alaybi wa-nzur fī lawāzimihī l-khās-ṣati bi-tilka l-maḳūlati auwalan, fa-inna lawāzima l-murakkabāti tustunbiṭa min lawāzimi l-basā'iti. fa-ammā ba'du l-mufasssirīna fa-yaqūlu inna ma'nāhū in kāna l-shay'u kamman* [om. 'Afiḥi] *ka-l-khaṭṭi qulta "kammun* [BDW: kam] *ṭūlun bilā 'arḍin," wa-in kāna kayfan* [BDW: kayfiyatan] *ka-l-lawni qulta "kayfun yakbriqu* ['Afiḥi: yahriqu, BDW: yuharriku] *l-mushiffa bimā huwa mushiffun bi-l-fi'li."*

*wa-ka-dhālika thumma inna l-mutarjīma yaqūlu inna ma'nā hādihā annaka taqūlu fī lughati l-'arabi "ṭūlun mā bilā 'arḍin," wa-fī lughati l-yūnāniyina lā yasta'milūna lafzata "mā" l-dāllata 'alā l-intishāri illā fī l-jawhari.*

*wa-ammā fī l-ashyā'i l-ukbrā fa-yasta'milūna badala lafzati "mā" sma l-maḳūlati l-'āliiyati. fa-idhā arādū an yaqūlū* [BDW: yuqāla] *"saḥḥun mā" qālū "kammun saḥḥun," aw "lawnun mā" qālū "kayfun lawnun."*

*wa-hā'ulā'i ghayru munāza'ina fī hādihā l-bābi li-annahum arbābu tilka l-lughati.*  
(*Burhān*, IV, 6, 308.12–309.8)

7.4. Gerard of Cremona (Latin Translation *An. Post.*)

Et necesse est homini, quando intendit diffinire summam (et hoc est quodlibet genus medium), ut intendat ad genus et dividat ipsum in species specierum eius sicut si dividat numerum in dualitatem et trinitatem, deinde comprehendat diffinitiones horum duorum et comparium utriusque. Et similiter, quando intendit diffinire lineam, accipit rectam et circularem, et quando intendit diffinire angulum, accipit

rectum. Deinde post illud genus illius rei, et est aut ex quantitate aut ex qualitate, et venatur comitantia ipsum sibi propria, quorum unumquodque est communius eo ex diffinitionibus specierum. (AnPGC, 85.26–35)

### 7.5. Philoponus (Greek)

λάμβανε, φησί, καὶ διαίρει τὸ γένος εἰς τὰ εἶδη τὰ εἰδικώτατα· οἶον τὴν γραμμὴν ὡς γένος διαίρει εἰς τὴν εὐθείαν γραμμὴν, εἰς τὴν περιφερῆ καὶ εἰς τὴν ἑλικοειδῆ τὴν καὶ καμπύλην λεγομένην. εἶτα λάβε τοὺς ὀρισμοὺς αὐτῶν, καὶ ὃ μέρος εὐρήσεις τοῦ ὀρισμοῦ κοινῶς θεωρούμενον ἐν πᾶσι τοῖς εἶδεσι, τοῦτό ἐστιν ὀρισμὸς τοῦ γένους, ἦγουν τῆς γραμμῆς· οἶον γραμμὴ εὐθεία ἐστὶ μήκος ἀπλατῆς οὐ τὰ μέρη τοῖς ἄκροις ἐπιπροσθεῖ· περιφερῆς δὲ ἐστὶ μήκος ἀπλατῆς οὐ αἰ ἀπὸ τοῦ κέντρου πρὸς τὴν περιφέρειαν ἐκβαλλόμενα εὐθείαι ἴσα ἀλλήλαις εἰσί· καμπύλη δὲ ἐστὶ μήκος ἀπλατῆς ἐξ εὐθείας γραμμῆς καὶ περιφεροῦς συγκαίμενον· ἐπεὶ γοῦν ἐν τούτοις πᾶσι κοινῶς θεωρεῖται τὸ μήκος ἀπλατῆς, τοῦτό ἐστιν ὀρισμὸς τοῦ γένους. (PCG, CAG, 401,4–14)

Ἦγουν μετὰ δὲ τὸ διαίρησαι τὸ γένος εἰς εἶδη καὶ ἐκ τῶν ὀρισμῶν αὐτῶν λαβεῖν τὸ κοινῶς ἐν αὐτοῖς θεωρούμενον, ὥσπερ τὸ μήκος ἀπλατῆς ἐλάβομεν, δεῖ σε λαβεῖν καὶ τὸ γένος ὅφ' ὃ ἀνάγεται ἢ γραμμῆ· ἐστὶ δὲ τὸ ποσόν· μίξαι οὖν τὸ κοινὸν τῶν εἰδῶν τοῦτο μετὰ τοῦ ποσοῦ καὶ εἰπέ “γραμμὴ ἐστὶ ποσὸν μήκος ἀπλατῆς.” ἐπὶ τινῶν δὲ εὐρήσεις γένος τὴν ποιότητα ἢ ἄλλην τινὰ τῶν κατηγοριῶν.<sup>34</sup> (PCG, CAG, 401.29–34)

### 7.6. Themistius (Greek)

δεῖ λαβεῖν πρῶτον μὲν ἐκείνου τοῦ γένους τὰ ἄτομα εἶδη, οἶον [...] γραμμῆς τὴν εὐθείαν καὶ περιφερῆ καὶ κεκλασμένην, καὶ γωνίας τὴν ὀξείαν καὶ ἀμβλείαν καὶ ὀρθήν· εἶτ' ἐπειδὴ ἄτομα ταῦτά ἐστιν εἶδη, ληπτέον αὐτῶν τοὺς ὀρισμοὺς κατὰ τὴν ὑφήγημένην μέθοδον, καὶ ὅσα κοινὰ ἐν τοῖς ἀπάντων ὀρισμοῖς ἔνεστιν, ἐκλεκτέον· οἶον τί εὐθεία γραμμῆ; μήκος ἀπλατῆς οὐ τὰ μέσα ἐπιπροσθεῖ τοῖς ἄκροις· τί περιφερῆς γραμμῆ;

<sup>34</sup>) Commenting on 96b15 Philoponus says “Now that he has taught a method by which you will discover the definitions of the most specific species, he teaches another by which one can discover the definitions of the genera. The method goes like that. Take the genus, he says, and divide it into the most specific species. For example, [taking] line as genus, divide [it] into straight line, circular, helix and the [line] that is called ‘crooked.’ Then take their definitions, and the part of the definition that you will discover to be observed common to all of the species is the definition of the genus, that is of line. For example, a straight line is a breadthless length of which the parts are in front of the extremities. A circular [line] is a breadthless length of which the straight lines that extend from the centre to the circumference are equal to each other. A crooked [line] is a breadthless length made up of a straight line and a circular line. So since ‘breadthless length’ is observed to be common in all of these, this is [the] definition of the genus” (transl. by O. Goldin, 96); later on, at 96b19, we read “in other words, after dividing the genus into species and taking from their definitions that which is observed in them to be common, just as we took breadthless length, so you must also take the genus under which line is classified. It is quantity. So bring together with quantity that which is observed to be common to the species and say ‘a line is a quantity [which is] breadthless length.’ For such things you will discover that the genus is quality or another of the categories,” see Philoponus (?), *On Aristotle*, 97.

μήκος ἀπλατές πρὸς ὅπερ ἀφ' ἑνὸς σημείου πᾶσαι αἱ προσπίπτουσαι εὐθεῖαι ἴσαι εἰσὶ; τί κεκλασμένη γραμμὴ; μήκος ἀπλατές τοιόνδε. ἐν δὴ πᾶσι τούτοις τοῖς ὀρισμοῖς τὸ μήκος ἀπλατές κοινὸν ἐνυπάρχει. τοῦτο οὖν ἔχοντας ἀνατρέχειν αὐθις ἐπὶ τὴν γραμμὴν καὶ σκοπεῖν ἐν ποίᾳ κατηγορίᾳ καὶ ἐπειδὴ ἐν ποσῶ τούτῳ συνθετέον τῷ γένει ὅσα κοινὰ εὐρομεν ἐν τοῖς τῶν ἀτόμων εἰδῶν ὀρισμοῖς. καὶ ἔσται γραμμῆς ὀρισμὸς ποσὸν μήκος ἀπλατές. (TPG, CAG, 56.4–16)

### 7.7. Themistius (Latin)

In generibus autem quae dividuntur in species oportet ut ingrediamur hac semita. Sed oportet imprimis ut accipiamus quod est in illo genere de speciebus quae non dividuntur. Cuius exemplum quia, si est numerus, accipiemus binarium et ternarium. Nam illae species non dividuntur, quamvis sint species aliae praeter eas similes eis. Et si est linea, accipiemus rectam et circularem et flexuosam. Et si est angulus, accipiemus rectum, acutum et obliquum. Deinde si istae species non dividuntur, oportet ut accipiamus definitiones earum per illam viam quam narravimus, et quod invenimus in definitionibus omnium earum commune eligamus ipsum et colligamus. Cuius exemplum est ut consideremus quid est linea recta. Et invenimus eam longitudinem sine latitudine et puncta tegunt extremitates eius. Deinde consideramus quid est linea circularis. Et invenimus eam longitudinem sine latitudine, et omnes lineae rectae, quae egrediuntur ad eam a puncto uno, donec concurrant ei, sunt aequales. Deinde consideramus quid est linea flexuosa. Et invenimus eam longitudinem sine latitudine cum aliqua dispositionum. In omnibus istis definitionibus invenitur sermo noster “longitudo sine latitudine” communis.

Cum ergo accipimus hoc, oportet ut redeamus ad lineam et consideremus in quo capitulum adiecti ingrediamur et quia invenimus eam in quantitatis capitulo, tunc oportet ut componamus cum hoc genere omnes res, quas invenimus in hoc genere communes in definitionibus specierum quae non dividuntur. Fit ergo definitio lineae “**quantitas longitudo sine latitudine**,” et ponuntur cum genere omnes res quae sunt communes in definitionibus specierum indivisibilium quae sunt sub eo.

(TPL, 304.26–305.5)

### 7.8. Averroes, Middle Commentary (Arabic)

*wa-ammā in kāna l-maqṣūdu taḥdīdahū jinsan mutawassītan bayna l-anwā'i l-akhīrati wa-l-jinsi l-manzūri fihī fa-l-sabīlu fī dhālika an na'kbudha ḥadda tilka l-anwā'i l-akhīrati llatī yanqasimu bihā dhālika l-jinsu bi-tilka l-sabīli llatī waṣafnā. fa-idhā wajadnā ḥadda kulli wāḥidin minā l-naw'ayni l-qasīmayni asqatnā min dhālika mā yakhuṣṣu wāḥidan minhā, wa-akbadhnā l-mushtaraka, wa-aḍafnā ilayhī jinsa dhālika l-shay'i: immā kammīyata, wa-immā kayfīyata, wa-immā ghayna dhālika minā l-ajnāsi l-muḥīṭati [possibly against the Latin translation] bi-dhālika l-shay'i l-'āliyatī.*

*fa-yakūnu l-mujtama'u min dhālika huwa ḥadda l-jinsi l-maqṣūdi taḥdīdahū, mithālu: annā idhā aradnā an naḥudda [1] l-kbaṭṭa, fa-innā na'midu ilā anwā'ihī*

*l-akhīrati wa-biyya*: [2] *l-khaṭṭu l-mustaḡīmu*, [3] *wa-l-mustadīru* [4] *wa-l-munḥanī*. *thumma na'kbudhu ḥadda kulli wābidin min bādhibi l-anwā'i l-thalāthati bitilka l-ṭarīqati. fal-nunzil annā wajadnā* [def. 2] *ḥadda l-khaṭṭi l-mustaḡīmi annahū: "ṭulun bilā 'ardīn"* lā yusnidu wasaṭuhū aṭrafahī 'inda l-naẓari ilayhī 'alā stiḡāmatin.

*wa-wajadnā* [def. 3] *ḥadda l-khaṭṭi l-mustadiri annahū "ṭulun bilā 'ardīn"* fī dākbi-lihī nuqṭatun kullu l-kbuṭūṭi l-khārijati ilayhī minhā mutasāwiyatun.

*wa-wajadnā* [def. 4] *ḥadda l-khaṭṭi l-munḥanī annahū aydan "ṭulun bilā 'ardīn"* muḏāfan ilayhī khāṣṣatun ukbrā. *fa-naṭlubu l-mushtaraka li-bādhibi l-budūdi l-thalāthati, fa-najiduhū fihā qawlanā: "ṭulun bilā 'ardīn"*—*fa-nuḏifu ilayhī jinsa l-kbuṭūṭi wa-huwa "l-kammu" fa-yakūnu* [def. 1] *ḥaddu l-khaṭṭi l-muṭlaqi annahū: "kammun lahū ṭulun bilā 'ardīn."* (Talkhīṣ, 141.6–19)

### 7.9. Averroes, *Middle Commentary* (Burana)

Si vero fuerit quod intendimus definire genus medium inter species ultimas et genus universale via utique in hoc erit ut accipiamus definitionem istarum specierum ultimarum per quas dividitur genus istud per hanc viam quam disposuimus. Cumque invenerimus definitionem utriusque secernimus ex hoc illud quod appropriatur uni ipsorum et accipimus communicans et complicamus ipsi genus istius rei, sive sit quantitas sive qualitas aut aliud ab hoc ex generibus que comprehenduntur in hoc superioribus. Et erit compositum ex hoc definitio generis, cuius intenditur definitio, ut in exempli, cum voluerimus definire lineam, consistemus super speciebus ultimis et est **linea recta et circularis et reflexa**. Deinde accipiemus definitionem unius-cuiusque istarum trium specierum per viam hanc et ponemus quod nos invenerimus definitionem lineae rectae quod est "longitudo sine latitudine, cuius medium non removetur ab utriusque extremitatibus suis," cum consideratur secundum rectum. Et inveniemus definitionem lineae circularis, quod est "longitudo sine latitudine in cuius medio est punctus a quo omnes lineae exeuntes sunt equales" et inveniemus definitionem lineae reflexae, quod est "longitudo sine latitudine cum qua componitur proprium aliud" et investigabimus communicans his tribus definitionibus et inveniemus ipsis quod dicimus "**longitudo sine latitudine**" et complicabimus ipsi genus lineae, quod est quantitas et erit definitio lineae absolute quod est "**quantitas habens longitudinem sine latitudine**" et incesso noster ad definitiones generum a definitionibus specierum est res a consuetudine naturae, et hoc quoniam genera sunt composita et species simplices. (Giuntina, MC, 31<sup>v</sup> I–M)

### Analysis

The discussion reported in the passage by Avicenna refers to something going on in the commentary tradition that we are not entirely privy to. While nothing resembling such a detailed analysis is to be found in Aristotle, there are analogous examples and arguments in Themistius and Philoponus, in particular the way in which the definition of a line is extracted from the definition of its species. The

idea is to find the common element of a genus in the definition of the species that fall under it. This is already quite interesting in and of itself, because it shows once more Avicenna's familiarity with the commentators in this particular work. But it also suggests that the sources Avicenna is acquainted with might go beyond Themistius and Philoponus, since he makes use of examples that are nowhere to be found in the latter.

A second important point to be made with regard to this passage concerns the fact that Avicenna explicitly mentions "a translator" (probably the translator of the commentary he is reading) and indulges in a number of linguistic considerations. He is interested in the generalization of the problem and in discussing a terminological issue that is raised, according to what he says, by this unnamed translator. The issue has to do with the presence of the word *mā* in Arabic to qualify a category other than substance with a suitable linguistic construct, which does not sound natural to the translator as far as the common usage in Greek is concerned. While the expressions *mufassir* and *sharḥ* are occasionally used in the *Burhān* (once in this very same passage), the reference to a *mutarjim* seems to be a unicum in this work.

Additional evidence on the use of a similar terminology is found in Averroes. In the *Long Commentary* we can find only Aristotle's examples. In the *Middle Commentary*, on the other hand, the argument seems to reflect the influence of Themistius (more likely than that of Philoponus who has a richer terminology or, for that matter, of any other source that Avicenna might have been familiar with). As can be seen from the last two passages quoted above, Averroes follows exactly the same procedure suggested by Aristotle, spelled out in detail already in the commentators, and thereafter adopted by Avicenna, according to which the definition of a generic term can be extracted by taking out the common part shared in by the definitions of the specific terms that fall under that generic term.

#### IV. Conclusion

The purpose of this paper was to present some hitherto neglected *facts* concerning the reception in Avicenna's *Kitāb al-Burhān* of the Arabic text of Aristotle's *Posterior Analytics* and the presence in it of uncontroversial traces of the ancient commentary tradition. These facts, in themselves, deserve considerable attention because they inform us about and reflect the complexity of the relationships between Avicenna's "Arabic Aristotle" and the two translations that, alongside other ancient sources—especially Themistius and Philoponus—he makes use of.

As to whether and how such factual elements—identity, similarity, convergence, divergence, difference with respect to both or neither of the two translations, the use of one against the other, and yet again, the extent of the influence of ancient commentators or that of an earlier Arabo-Islamic exegetical tradition—

could be *interpreted* in a more general perspective, some suggestions can be put forward already at this stage, whereas some other questions will inevitably remain open. Although an accurate and exhaustive assessment of their general role will have to wait for a systematic investigation of all the identifiable *loci paralleli* (and of a clearer picture of the complex features involved in their later transmission through Hebrew and Latin translations), I think the significance of the relationships outlined above between Avicenna's *Burhān* and the Arabic versions of the *Posterior Analytics* and its "companions" cannot be overestimated.

My main conclusions can be summarized as follows:

1. Avicenna, like Averroes after him, already had access to both Arabic translations that are known to have existed (Abū Bishr Mattā's translation and the anonymous translation). In particular, he provably makes use of

- 1.1. Abū Bishr Mattā's translation for the first book
- 1.2. the anonymous translation for the second book

although no generalization can be made at this stage concerning the relative frequency of both.

2. Avicenna has knowledge of and is influenced by Themistius' paraphrasis and Philoponus' commentary.

3. Avicenna might have had knowledge of and have been influenced by other (unknown) sources from the ancient commentary tradition (in passages in which he is clearly drawing on the latter, he occasionally goes beyond what can be found in Themistius and Philoponus in terms of vocabulary and examples).

4. Avicenna might have had access to a source that is familiar with the glosses of the *Parisinus* (or to a copy of the manuscript itself, if Abū Bishr Mattā's translation circulated in that form, or with the terminology attested in Fārābī's *Kitāb al-Ḥurūf*). If this were to be the case, then the argument in support of the thesis that Avicenna uses the anonymous translation to comment on the second book of the *Posterior Analytics* would be slightly weakened (the terminology employed in the classification of scientific enquiries could be taken from the gloss, instead of deriving from the anonymous text, or also from Fārābī) but not ruled out. The same holds of the example from *An. Post.*, A13, in which the explanation that Avicenna endorses might derive from a gloss to Mattā's translation just as it could derive directly from Philoponus' commentary. Although assuming the stronger hypothesis, i.e. that Avicenna had access to the glosses, would explain two facts at once (the terminology used in B1 and the interpretations discussed



to explain the passage in A13), I think this claim should be corroborated by more substantive historical evidence. I am therefore prudentially inclined to prefer the former alternative, i.e. the use of the anonymous translation and the hypothesis of Avicenna's direct acquaintance with Philoponus (especially because the latter is provable on independent grounds). Further research will hopefully shed some light on the question, if not settle it.

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Sigla most frequently used in the article (full details in the corresponding bibliographical entries)

<i>AnPGC</i>	<i>Analytica Posteriora Gerardo Cremonensi Interprete</i>
<i>CAG</i>	<i>Commentaria in Aristotelem Graeca</i>
<i>GALex</i>	<i>A Greek and Arabic Lexicon</i>
<i>Giuntina, LC</i>	<i>Aristotelis Stagiritae Posteriorum Resolutoriorum Libri Duo cum Averrois Cordubensis Magnis Commentariis</i>
<i>Giuntina, MC</i>	<i>Averrois Expositio Media In Librum Demonstrationis Aristotelis</i>
<i>PCG</i>	<i>Philoponus' Commentary on An. Post. (Greek)</i>
<i>TPG</i>	<i>Themistius' Paraphrasis of An. Post. (Greek)</i>
<i>TPL</i>	<i>Themistius' Paraphrasis of An. Post. (Latin)</i>

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