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Subscription orders
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Web site: http://learningroads.cfs.unipi.it
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ISSN 2239-012X (Online)

Registration at the law court of Pisa, 18/12, November 23, 2012.
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Cover
Mašhad, Kitābḫāna-i Āsitān-i Quds-i Radawī 300, f. 1v
Paris, Bibliothèque nationale de France, grec 1853, f. 186v
Abstract

Aristotle’s cosmological treatise *De Caelo*, appropriately named “Book on the Heaven and the World” in the Arabic tradition, was one of the most influential, and – apart from the *Organon* of logic – the best represented among Aristotle’s authentic works in Mediaeval Arabic translations and commentaries. The identity and ascription of the extant versions poses a number of problems which only recently, in the light of manuscript findings and the discovery of some early testimonies, can be solved with certainty. The present contribution, after giving a survey of the translators’ work – beginning with Ibn al-Biṭrīq, working in the age of al-Maʾmūn and in the circle of al-Kindī – concentrates on the translation, annotation and commentary of the Baghdad physician and philosopher Abū l-Faraǧ ʿAbdallāh ibn al-Ṭayyib (d. 1043). The transmission, language and interpretation of his *Kitāb al-Samāʾ*, parts of which have been identified in an acephalous manuscript, and a fragment of his ‘Great Commentary’, are presented and analysed in detail.

1. The Arabic Versions of Aristotle’s *De Caelo*

1.1. Introduction

Aristotle’s *De Caelo* (Περὶ οὐρανοῦ, Arabic, *Kitāb al-Samāʾ wa-l-ʿālam*), was translated into Arabic in the early period of the Graeco-Arabic translation movement, in the newly founded capital, Baghdad, due to the eager interest of scientists and administrators of the rising ʿAbbāsid empire in astronomy, astrology, and other disciplines apt to unravel the dependence of the sublunar world from the eternal sphere, and to resolve the antinomy between the eternity of the divine First Cause and the contingency of the created being.

The wide readership and far-ranging influence of the work, from the beginnings of Aristotle’s reading in ʿAbbāsid Baghdad to the late revival of the Arabic Aristotle in ʿṢafavīd Iran, is attested in extant translations, in a number of early testimonia and quotations supplementing the direct tradition, in compendia and literal commentaries, and in new interpretations of the Aristotelian cosmology and physics in the framework of the encyclopaedic summae of post-Avicennian philosophy. Compared with the Arabic tradition of other parts of the *Corpus Aristotelicum*, the textual tradition of *De Caelo* is exceptionally rich. Whereas the reading of many Aristotelian texts was superseded through the overwhelming success of Avicenna’s *Summae* and later compendia, the *De Caelo* continued to be read, or was rediscovered due to the theological interest of its subject matter and the interpretation given to certain concepts by the early translator.

*My sincere thanks are due to Cleophea Ferrari for her careful proofreading and helpful suggestions, and to Cristina D’Ancona and Elisa Coda for their painstaking efforts in editing my manuscript, assisted by Issam Marjani for the Arabic passages – needless to say that all imperfections and blunders that remain are my own!*
Our present study is concerned with the extant Arabic versions of *De Caelo*, their origin, dating and transmission, as well as with their identification with regard to the early bibliographical data and the testimonies of the readers and commentators of the text. After an overview of the Arabic tradition, special attention will be given to the translation and commentary of Ibn al-Tayyib (d. 435 A.H./1043 A.D.), only recently identified in manuscript, and prepared for critical edition.

Three versions have survived in manuscript:

**B** The early, ninth century translation of Yaḥyā (Yūḥannā) ibn al-Biṭrīq from Syriac;

**Bc** A partial revision of this early version, extending to book I, chapters 1-6, possibly made for the lemmata of Alexander’s commentary (v. § 3.1, pp. 223-5);

**T** A further translation, made independently from Ibn al-Biṭrīq’s translation **B** and its partial revision **Bc**, but on the basis of the same Syriac version, has partially survived in a defective codex, Paris BnF 2281, and by internal and external evidence can now be safely attributed to Abū l-Farağ ʿAbdallāh ibn al-Ṭayyib, as also the running commentary in the form of marginal scholia accompanying the Aristotelian text (v. § 4).

Since the first from these Arabic versions to become available in print was made on the basis of a single manuscript not of Ibn al-Biṭrīq’s original version, but of the partially revised version **Bc** of his translation, and since the translation of Ibn al-Ṭayyib survived only anonymously in an acephalous fragment, initial attempts at identification and dating of the translators were hampered by lack of the relevant materials. On the basis of numerous manuscripts of version **B** and its revision, transmitted in an Eastern (Iranian) and a Western (Andalusian) tradition, and of a linguistic and structural analysis of the translations, a fairly clear picture has emerged. Taken together with enlightening testimonia of some early readers of the work and further fragments of the Arabic versions emerging in recent years, most – if not all – of the questions of the chronology and attribution of the extant versions can now be clarified.

### 2.1.1. Ibn al-Nadīm and the Bibliographical Tradition

The oldest detailed report on the Arabic translations of Aristotle’s *De Caelo* is found in the *Kitāb al-Fihrist* of Ibn al-Nadīm (extant recension dated 377/987):³

Book on the Heaven and the World, in four books. This was translated by Ibn al-Biṭrīq, Ḥunayn revised it. Abū Bišr Mattā has translated part of the first book. Alexander of Aphrodisias commented on a part of the first treatise of this book.⁴ There is a commentary by Themistius on the whole work,

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2. See my 1965 thesis, G. Endress, *Die arabischen Übersetzungen von Aristoteles’ Schrift De Caelo* (henceforth: *ArÜbCael*), Frankfurt a.M. 1965, printed 1966), where I assumed the version of the Paris ms. to be the oldest one, and called it version A, being misled by the ‘modern’ terminology of B – in fact, the revised version Bc.


translated and [and: v.l. or, al-Qifṭī] revised by Yahyā ibn ‘Adī. By Hunayn, there is something on this (text), \(^5\) viz. the Sixteen Questions. By Abū Zayd al-Balḥī, there is a commentary on the beginning of this book, “which he wrote” \([\text{add. al-Qifṭī}]\) for Abū Gaʿfar al-Ḥāzin.


This article of the Fihrist was adopted verbatim by al-Qifṭī (m. 646/1248) in his Kitāb Iḥbār al-ʿulamāʾ bi-aḥbār al-hukamāʾ (abridgment by al-Zawzanī, Tārīḫ al-ḥukamāʾ, ed. A Müller - J. Lippert, Dietrich, Leipzig 1903, pp. 39.22-40.5, omitting, however, the words wa-aslahabū Hunayn (“and Hunayn revised it”, sc. Ibn al-Bīṭriq’s version), and concerning the commentary of Themistius, changing naqalahū wa-aslahabū (sc. Yahyā ibn ‘Adī) into naqalahū aw aslahabū, probably correctly (see below, p. 228). Al-Qifṭī further adds (ibid., p. 40.6-8): “There is a treatise on this book, and a refutation, called al-Taṣaffuḥ (The Scrutiny), by Abū Hāšim al-Ġubbāʾī, in which he invalidates the principles of Aristotle”.

This is supplemented by Ibn al-Nadīm’s notes on the translations of Abū Bišr Mattā (Fihrist, p. 264.1-2 Flügel; p. 201.9-10 Sayyid = al-Qifṭī, p. 323.16 Müller-Lippert):

Mattā ibn Yūnus. […] Among his commentaries [are the following: […]. Translation of the commentary of Alexander on the Book on the Heaven (naql kitāb tafsīr al-Iskandar li-kitāb al-Samāʾ); Abū Zakariyyāʾ Yahyā ibn ‘Adī revised this.\(^6\)

Against the Fihrist, p. 250.29-30 Flügel, in this instance the translation of Abū Bišr Mattā is not said to have comprised part of book I only, but the restriction is confirmed by Ibn al-Sarī who had the text before him (see the following section and infra, § 3.1.2.2).

2.1.2. Ibn al-Sarī

A valuable supplement to the bibliographer’s Catalogue – completed, in the extant version, in 377/987H (Ibn al-Nadīm died in 380/990)\(^7\) – is the testimony of an expert reader of Aristotle’s text, the mathematician Abī l-Futūḥ Aḥmad ibn al-Sarī (also known as Ibn al-Ṣalāḥ, d. 548/1153). In his treatise Explanation of an error occurring in a Proposition mentioned in the Third Treatise of the ‘Book on the Heaven and the World’, he discusses a passage in Aristotle’s De Caelo III 8, 306 b 3-8, and in order to exclude the possibility that the erroneous statement was “due to a mistake of the translator of this book, viz. Yahyā ibn al-Bīṭriq”, he proceeds to check on the other translations. He lists – and for the relevant passage, quotes – the following Arabic versions:

on the commentary of Themistius (Fihrist, p. 250.30 Flügel) with his information on Alexander’s Tafsīr (ibid., p. 264.1-2 Flügel).

\(^5\) wa-li-Hunayn fīhi šay, see below, § 3.1.2.1, p. 224.

\(^6\) Cf. above n. 4.

the translation of this book made by Abū `Alī Ḥasan ibn Zūr`a,  
the translation of this book by Abū l-Farağ ibn al-Ṭayyib made from Syriac into Arabic,  
the translation of Abū l-Farağ `Abdallāh ibn al-Ṭayyib from Syriac into Arabic  
and then, turning to the commentaries of the Greeks, says:  
there is no ancient commentary on this book except the commentary (ṣarḥ) of Themistius, found complete,  
and of the commentary of Alexander, a part of his commentary (tafsīr) on the first treatise.  
For the 10th/11th century translations not mentioned by Ibn al-Nadīm, his report will be given in full infra, § 3.2.1, p. 226f.)  

2.1.3 Further Quotations and References  
While further revisions and even new versions were made, Ibn al-Biṭrīq’s translation remained nonetheless the standard Arabic text of Aristotle’s De Caelo. The lemmata in Ibn Ruṣd’s Great Commentary (Tafsīr kitāb al-Samā` wa-l-ʿālam) are given in his rendering (v. infra, 222 with n. 24, on the Tunis ms. of this work). It is labelled as one of the “translations of al-Kindī” by Ibn Ruṣd who deplores (Comm. mag. Cael. III c. 35) not having one of the superior productions of Iṣḥāq ibn Ḥunayn (the translator of Aristotle’s Physics a.o.) at his disposal.

2.1.4. Summary  
Aristotle’s De Caelo is known in the Arabic tradition, both direct and indirect, under the title Kitāb al-Samā` wa-l-ʿālam (Book on the Heaven and the World). The composite title is justified by the contents of the work.8 It appears in the same form in the Arabic list of Aristotle’s writings of Ptolemy.9 But the simple title Kitāb al-Samā` is also found in al-Kindī’s treatise On the Number of Aristotle Books (R. fi Kammiyyat kutub Arisṭāṭālīs, ed. M. Guidi - R. Walzer, p. 111.26 § X.17), and the same form of the title was used by Abū l-Farağ ibn al-Ṭayyib, according to the explicit of his commentary on Book II in the surviving fragment (v. infra, p. 265).  
The Arabic title of Aristotle’s Περὶ οὐρανοῦ, Kitāb al-Samā` wa-l-ʿālam describes very appropriately the subject-matter of the work: the Heavens, meaning the celestial sphere, moving eternally in circular motion (Book I and Book II), and the realm of the earth and the four sublunar elements (Book III and Book IV). It was described in just these terms by the Greek commentators: cf. Philop., In Meteor,
Ibn al-Nadīm knew three Arabic versions of *De Caelo*. We have to regard his testimony against the information provided by Ibn al-Sarī on both the earlier and two more tenth-century translations, based on autopsy. We will examine the identity of the texts mentioned there in comparison with those extant in manuscript.

- A complete translation by Ibn al-Biṭrīq, a mawlā of the Caliph al-Maʾmūn, who worked in the circle of the philosopher-scientist al-Kindī, the faylasūf al-ʿArab (see below, § 2.2). He is the translator of the vulgate version of the book, ascribed to him explicitly in some of the extant manuscripts as well as in the testimony of Ibn al-Sarī.

- A revision (iṣlāḥ ‘emendation’) of this translation by Ḥunayn ibn Isḥāq. The notice of Ibn al-Nadīm is omitted in al-Qifṭī’s article – who for the rest, copies the whole section faithfully – and is probably to be disregarded, due to a contamination with the mention of Ḥunayn’s *Sixteen Questions* (see below, p. 224, on this text).

- A translation said to comprise only part of the first book, by Abū Bišr Mattā, and by the same, a translation of the commentary of Alexander on the *Book on the Heaven* (naql kitāb tafsīr al-Iskandar li-kitāb al-Samāʾ); “Abū Zakariyyāʾ Yahyā ibn ʿAdī revised this”. But “Alexander of Aphrodisias commented on part of the first treatise of this book” only; this is confirmed by Ibn al-Sarī. As we know, Alexander’s commentary was a literal commentary, quoting the lemmata of Aristotle’s text. So Abū Bišr’s “translation of part of the first book” of Aristotle’s *De Caelo* relates to the lemmata from Alexander’s commentary. We have reasons to believe that this is the partial revision of Ibn al-Biṭrīq’s translation of *De Caelo* Book I, c. 1-6, found in one group of manuscripts (v. § 3.1).

- A translation made from the Syriac by ʿĪsā ibn Zurʿa is mentioned by Ibn al-Sarī. His quotation of *De Caelo* III 8, 306 b 3-8 is the only specimen we have. While made on the basis of the same Syriac text, it is definitely different from Ibn al-Ṭayyib’s, from which the same passage is quoted in Ibn al-Sarī’s comparative examination.

- Abū l-Farağ ibn al-Ṭayyib’s translation is first mentioned, and quoted, by Ibn al-Sarī. Later, Ibn Ruṣd makes use of his version in order to emend the vulgate translation of Ibn al-Biṭrīq, providing the lemmata of his *Great Commentary*. The identification of an acephalous fragment of 62 leaves in ms. Paris, BnF, arabe 2281, with Ibn al-Ṭayyib’s annotated translation was suggested by a number of structural and linguistic details, and supported definitely by the discovery of a piece of his *Great Commentary*, to be presented in the main part of the present study (§ 4).
2.2. The Translation of Ibn al-Bīṭrīq

2.2.1. Yaḥyā (Yūḥannā) ibn al-Bīṭrīq

Yaḥyā ibn al-Bīṭrīq was a prominent figure in the great translation movement, culminating during the reign of the ʿAbbāsid Caliph al-Maʾmūn. He belonged to the entourage of the vizier al-Ḥasan ibn Sahl who after the assassination of his eminent brother, al-Faḍl ibn Sahl, was appointed vizier of al-Maʾmūn in 202/818 (he died in 236/851) – both the brothers al-Faḍl and al-Ḥasan were among the sponsors of translators and scientists whose support brought riches and advancement to high stations at the court. Our earliest source, Ibn Ǧulǧul’s ʿṬabaqāt (written in 377/987), calls him a mawlā (‘freedman’) of al-Maʾmūn; this would imply his conversion to Islam.


His complete name is Abū Zakariyyāʾ Yaḥyā ibn al-Bīṭrīq; Ibn Ǧulǧul and al-Qifṭī give his ism in the form Yūḥannā, corresponding to the Aramaic form of Greek Ioannes. The father, al-Bīṭrīq,

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according to Ibn al-Nadīm was active “in the time of al-Manṣūr, who charged him with translating a number of the ancient books” (Fihrist, p. 244.3 Flügel). The name al-Biṭrīq is the Greek title of patrikios. Ibn Abī Uṣaybiʿa reproduces this information of the Fihrist, and adds: “There are many excellent translations made by him, second only to the work of Ḥunayn ibn Ishāq, and I have seen in his translation many medical writings of Hippocrates and Galen” (Ibn Abī Uṣaybiʿa, 'Uyūn, vol. 1, p. 205.9-11 Lippert).

The name of the son Yaḥyā is mentioned among those who were sent by the Caliph in quest of Greek manuscript sources into Byzantine territory, along with al-Ḥaǧǧāǧ ibn Maṭar (the translator of Euclid’s Elementa) and Salm (or Salmā, in the Aramaic form), director of the caliphal library, the Bayt al-Ḥikma, and is also listed among the Asmaʾ al-naqala min al-luġāt ilā l-lisān al-ʿarabī (“Names of the translators from the [foreign] languages into Arabic”, cf. Fihrist, p. 244.1 Flügel), after his father, al-Biṭrīq, and followed by al-Ḥaǧǧāǧ ibn Maṭar and Ibn Nāʿima al-Ḥimṣī, a member of his circle (see § 2.2.3).

“Yūḥannā was not a physician, but his strength was rather in philosophy” (Ibn Ġulḡul, Tabaqāt, p. 67.12 Sayyid; al-Qifṭī, Tārīḫ al-ḥukamāʾ, p. 379.19-20 Müller-Lippert); al-Qifṭī adds: “Above all, he was devoted to translating the works of Aristotle, also – like Hunayn and others – the books of Hippocrates” (ibid., p. 379.20-21 Müller-Lippert). Indeed, the list of translations transmitted under Ibn al-Biṭrīq’s name or attributed to him in the bio-bibliographical testimonia11 contains, beside some medical titles, Plato’s Timaeus and an important list of Aristotelica. Even considering the many uncertainties of attribution and authenticity (see § 2.2.3), we can say that Ibn al-Biṭrīq was the first to translate the works of Greek philosophy on a larger scale, moving – at variance with the astronomers and physicians dominating the scientific community of the early ʿAbbāsid administration – in a circle of philosopher-scientists: the circle of al-Kindī.

2.2.2. The Syriac Source

Ibn al-Biṭrīq had no Greek. As we learn from Ibn Abī Uṣaybiʿa, “He knew neither Greek nor Arabic properly; he was just a lāṭīni who knew the language of present-day Byzantium and their script, i.e., the connected letters, not the unconnected of the ancient Greek” – lāṭīni instead of rūmī is unusual, but in respect to language, what is meant must be the Byzantine koiné, and the ‘unconnected’ is the uncial majuscule script of the Byzantine codices.12 Additional evidence of Syriac being the source language of his translation of De Caelo and other works is provided by the testimony of Ibn al-Sarī, and by the linguistic evidence of terminology, grammar and style. The restriction to Syriac sources, unsupported as yet by the commentaries of the school tradition, is one of the reasons why some of his translations (as e.g. of Aristotle’s Analytica Posteriora) were superseded and replaced by those of the translators who in the next generation could rely on the original Greek texts – Hunayn ibn Ishāq, Ishāq ibn Ḥunayn, Ṭābit ibn Quorra, Abū ʿUṯmān al-Dimašqī – and then by those of the 10th century, Abū Bišr Mattā and his school, who, again relying on Syriac sources, revived the teaching curriculum of the Alexandrian school through translations of the Peripatetic and Neoplatonic commentators preserved in the monasteries of Mesopotamia and the Fertile Crescent.

11 A full list, to be complemented and emended in the light of recent research, was compiled by Dunlop, “The Translations of al-Biṭrīq and Yahyā (Yuhannā) b. al-Biṭrīq” (quoted above, p. 218).

No Syriac translation of *De Caelo* has been preserved, nor is any literal translation explicitly quoted by authors writing in Syriac.\textsuperscript{13} It is clear from testimonia and internal evidence that both the oldest, early ninth-century Arabic translation of Ibn al-Bīṭrīq and the last one by Abū l-Farağ ibn al-Ṭayyib were made from Syriac, and from a comparison of these translations it appears that both were made from the same Syriac Vorlage (v. infra, § 4.5). But there is no trace of this Syriac version surviving in references or quotations of Jacobite or Nestorian readers, neither in pre-Islamic Syriac literature nor in the learned philosopher-theologians of the church of a later period.

A contemporary of Yaḥyā ibn al-Bīṭrīq was Job of Edessa (Ayyūb al-Ruhāwī, called al-Abraš ‘the pock-marked’), a philosopher and physician, another translator of Greek works into Arabic, but mostly into Syriac. Ḣunayn ibn Ishāq, in his *Epistle* on the Syriac and Arabic translations of Galen, names him as translator of 36 works of Galen, among them the *Book on the Theriak*, translated into Arabic by Ibn al-Bīṭrīq from the Syriac of Ayyūb.\textsuperscript{14} Like Ibn al-Bīṭrīq, he was active under al-Maʾmūn and died after 832. His *Summa* of natural science and natural philosophy, the *Book of Treasures* (*Ktābā d-Sīmātā*)\textsuperscript{15} reveals an intimate knowledge of *De Caelo* (see ed. Mingana, p. 85 / translation, pp. 16, 86/18, 89/23, 207-8/220-22 – in this place, p. 207/220, an explicit reference – p. 217/239-40, etc. *saepius*). While these references show the author’s familiarity with the Greek work, there is no evidence that he was quoting a Syriac translation available to him, let alone done by himself.

### 2.2.3. The Circle of al-Kindī: a Common Agenda, and a Common Language

Only in the Q family of manuscripts (v. § 2.2.4), “Yaḥyā ibn al-Bīṭrīq fatā l-Maʾmūn” is explicitly mentioned as translator of *De Caelo* in the inscription. This is confirmed by the well-informed reader, Ibn al-Sari, whose quotation from Book III, Ch. 8, corresponds to the text transmitted in manuscript. Taking together the terminology and style of the translation, found as well (a) in other translations of Greek philosophical works under the name of Ibn al-Bīṭrīq, and (b) in the works of a group of early translators contemporary with Ibn al-Bīṭrīq, and finally, (c) the connection of this group with the ‘Philosopher of the Arabs’, Abū Yūsuf Yaʿqub ibn Ishāq al-Kindī as commissioner, reader and revisor of their translations, we have ample evidence for placing version B of *De Caelo* in the ‘Circle of al-Kindī’.

The coherence of this ensemble of Greek-Arabic translations from the ‘Circle of al-Kindī’\textsuperscript{16} can be demonstrated from internal evidence. We have a number of further philosophical works which on the one hand were quoted by al-Kindī or can be shown to have influenced his choice of topics and his doctrine, and which on the other hand – and here textual philology meets the history of ideas – are connected by common features of terminology and style.

\textsuperscript{13} Apart from logic, little has been preserved from the works of Aristotle in Syriac; a meticulous survey of the evidence that can be gleaned from quotations, glosses and indirect transmission has been given by R. Arnzen - Y. Arzhanov, “Die Glossen in Ms. Leyden Or. 583 und die syrische Rezeption der aristotelischen Physik”, in E. Coda - C. Martini Bonadeo (eds.), *De l’Antiquité tardive au Moyen Âge: Études de logique aristotélicienne et de philosophie grecque, syriaque, arabe et latine offertes à Henri Hugonnard-Roche*, Vrin, Paris 2014 (Études Musulmanes, 44), pp. 415-63.


The most prolific translator of philosophical works in this group, although not explicitly mentioned in connection with al-Kindī, but quoted by him and linked to other versions by many properties of his language, was indeed Yahyā ibn al-Bīṭrīq (§ 2.2.1, supra, p. 218), who had been a mawla of al-Māmun, and whose nasab, the Byzantine title of patrickios, is a pointer to the Hellenized Christian milieu of the Fertile Crescent.17 The common characteristics encountered in this group of translations are not shared uniformly by all of them, and not yielding univocal evidence in favour of or against this or that individual translator; what we have is an ensemble of “index fossils”, which may permit us to link a number of texts with each other or with al-Kindī’s philosophical and scientific milieu.18 Best known among the colleagues of Ibn al-Bīṭrīq working in this circle are ‘Abd al-Masīh ibn ‘Abdallāh Ibn Nā’ima al-Ḥimṣī who translated an annotated version of several treatise from Enneads IV-VI of Plotinus under the name of Aristotle, the famous Theology (Uṯūlūǧiyā wa-huwa l-qawl fī l-rubūbiyya) “revised by al-Kindī”, and Uṣṭāṯ (Eustathios) who translated Aristotle’s Metaphysics “for al-Kindī” (Fibrīṣt, p. 251.27-28 Flügel).

Closest to De Caelo in terminology and style, on the other hand, are the Arabic versions of Proclus’s Elementatio theologica, likewise transmitted as part of the Theology of Aristotle, “excerpted by Alexander Aphrodisiensis”, and like the Uṯūlūǧiyā, with many interpretamenta, and accompanied by more treatises of Alexander (mostly authentic).19 From the same milieu, we have an Arabic compendium of Aristotle’s De Anima, largely dependent on the commentary of John Philoponus.20 Together with the texts mentioned before, these form a group of texts which what has been called the ‘Metaphysics Corpus’ of al-Kindī,21 who made good use of the sources provided by his circle.

Notwithstanding the personal and philosophical coherence of the group, we observe differences between the fields of interest and the language of the translations, technique and terminology. Even with regard to the works of Aristotle said to have been translated by Ibn al-Bīṭrīq himself, in the manuscripts or in testimonia, there remain questions of attribution and identification. Beside De Caelo, the translation of Aristotle’s Meteorologica is under Ibn al-Bīṭrīq’s name; there are parallels in the terminology, but differences in style – this is not surprising when we regard the character of this version, over long stretches a rough paraphrase or summary rather than a faithful translation (in all probability, due to its Syriac Vorlage). Also under the name of Ibn al-Bīṭrīq, we find the Arabic version of Aristotle’s books De Animalibus, but here the language, despite some correspondences, is much closer to the vocabulary and usage of Uṣṭāṯ’s translation of the Metaphysica. Another close relative of both the Arabic Metaphysica and De Animalibus, and hence attributable to Uṣṭāṯ, is the translation of Aristotle’s Ethica Nicomachea, books V to X (as opposed to books I-IV, translated by Ishāq ibn Ḥunayn).22

17 Cf. my ArÜbCael (above, n. 2), pp. 89ff. I will not go here into the history of the spurious Kitāb Sirr al-asrār (Secretum secretorum), also attributed to Ibn al-Bīṭrīq.
18 For the principal characteristics and a series of examples see Endress, “The Circle of al-Kindī” [above, n. 16], p. 14, and infra, § 4.6, a comparison with the distinctive features of Ibn al-Tayyib’s translation of the same Syriac version of De Caelo.
19 See G. Endress, Proclus Arabus: Zwanzig Abschnitte aus der Institutio Theologica in arabischer Übersetzung, Beirut - Wiesbaden 1963 (Beiruter Texte und Studien, 10) [henceforth: ProclArab].
It is probably through al-Kindī’s school, where the Neoplatonism of Plotinus and Proclus was received under Aristotle’s name, and the authentic writings of Aristotle on cosmology and psychology were given the stamp of gnostic Neoplatonism—thus preparing the integration of the strands of Ancient philosophy through Miskawayh and Ibn Sinā—that the key texts continued to be read even while new translations became available. Other works of the translator Ibn al-Bīṭrīq, as Aristotle’s Prior Analytics, were superseded and lost without trace. It is true that in many other cases the Arabic Aristotle was simply displaced by the summae of Avicenna and survived only when accompanied by commentaries read in their own right (Physica, Metaphysica). But the De Caelo in Ibn al-Bīṭrīq’s version continued to be read as the vulgate version, even though two complete 10th/11th translations had become available—so Ibn Ruṣd complained that for most of the lemmata of his Great Commentary (Tafsīr al-Samāʾ wa-l-ʿālam), he had only “the translations of al-Kindī—but more faithful are those of Ishāq”.

2.2.4. The Vulgate Translation of Yaḥyā (Yūḥannā) Ibn al-Bīṭrīq: the Witnesses of the Text

The Arabic version B made by Yaḥyā ibn al-Bīṭrīq has been transmitted in three main groups of witnesses:

a) Western tradition

Ġ The Maghribi tradition of version B is represented by one manuscript, preserving the text of Aristotle’s De Caelo in the lemmata of an incomplete copy (Book I, Ch. 7 – Book II, Ch. 7) of Ibn Ruṣd’s Commentarium Magnum.24 The Western Arabic tradition is further represented by two medieval Latin translations from Arabic, those of Gerard of Cremona (1114-1187), and – in connection with Averroes’s Commentarium Magnum – by Michael Scot (d. c. 1235).

b) Eastern tradition

Q A family of several manuscripts, all coming from Iran of the Ṣafavid and post-Ṣafavid periods (11th–13th/17-19th cent.) and going back to an exemplar (now lost) copied in Damascus in 580/1184.

c) A third family of manuscript presents – for book I, ch. 1-6 – a revised version Bc of Ibn al-Bīṭrīq’s original translation:

Mhr All copies, like those of the Q family, are from the schools of Ṣafavid Iran and its Indian offsprings, and go back to a common archetype connected with the 6th/12th century Christian physician Mihrān ibn Maḥṣūr. For Book I, Chapters 1-6, this group represents a revised version of Ibn al-Bīṭrīq’s translation (see the following section).

222 Gerhard Endress

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25 Ed. I. Opelt in Alberti Magni Opera omnia, t. V, Pars 1: De Caelo et mundo, Aschendorff Verlag, Münster 1971, printed, with a short critical apparatus, in the lower margins of Albert’s De Caelo et mundo.

26 Ed. in Averrois Cordubensis commentum magnum super libro De celo et mundo Aristotelis, ex recognitio Francisci James Carmody † in lucem editid Rüdiger Arnzen, editioni praeletus est Gerhard Endress, Peeters, Leuven 2003 (Recherches de théologie et philosophie médiévales. Bibliotheca, 4).
3. The Revised Version of Ibn al-Biṭrīq’s Translation and the tenth-century Translators of De Caelo and its Commentators

3.1 The Partial Revision of Ibn al-Biṭrīq’s Translation

3.1.1. Transmission

While Ibn al-Biṭrīq’s translation became the vulgate version of De Caelo, and the basis of all later treatments, a number of manuscripts of Iranian origin offer a revised version of Book I, Chapters 1-6. All the extant copies were transcribed from a common exemplar, going back to the holograph of Mihrān ibn Mansūr al-Masīḥī written for the Artuqid Naḡm-al-Dīn Alpī in 553/1158. Terminology, style and the quality of this version in regard of accuracy and fidelity point to a revisor who either had access to the Greek text, or revised the translation in the light of commentaries and glosses available in Greek or Syriac.

The Christian physician Mihrān ibn Mansūr ibn Mihrān was working in the service of the Artuqid Naḡm-al-Dīn Alpī (r. 548/1154-572/1176) of Diyārbakr.27 For the same ruler, he revised the Arabic version of Dioscurides’ Materia medica, as appears from the manuscript Mašhad, Āstān-i Quds-i Raḍawī 149, where he is said to have prepared a new version of this work from the Syriac for the Artuqid ruler.28

The revisor of Ibn al-Biṭrīq’s version made deep interventions into his predecessor’s work only in the first chapters of Book I of De Caelo, but even here, he is clearly dependent upon him. He corrects and clarifies the older version – we do not know which additional materials, versions or commentaries were at his disposal (but cf. below on Alexander’s commentary) – but from Chapter 5 his changes are becoming less and less. For the rest, he ‘modernizes’ the terminology, conforming with the technical language introduced by Ħunayn ibn Ishāq and his group, in particular the philosophical texts translated by Ishāq ibn Ḥunayn, such as Aristotle’s Physica.

3.1.2. Testimonies and the Question of Whodunit

3.1.2.1. Ħunayn ibn Ishāq

Ibn al-Nadīm, as quoted before, after mentioning Ibn al-Biṭrīq’s translation adds that “Ḥunayn revised it” (wa-aṣlaḥahū Ħunayn, cf. Fihrist, p. 250.30 Flügel). This remark is missing from al-Qīṭṭī’s report on De Caelo, copied, as all other notices on Aristotle and his works in his Tārīḫ al-ḥukamāʾ from Ibn al-Nadīm’s book, with additions and corrections on the basis of his own library and his intimate knowledge of the books available in early 12th century Syria. This omission, and the fact that no other trace is found of a translation of De Caelo attributable to Ḥunayn, raises doubts as to the actual contribution of Ḥunayn.


Whereas many a translation was wrongly attributed to Ḥunayn or in his school should not have replaced the older version and put it under his name. It is true that Ḥunayn revised many an older translation, mainly of medical but also of some philosophical sources, into both Syriac and Arabic, and in his Epistle on the Available Translations of Galen he lists not a few older versions, Syriac and Arabic, which he revised (aṣḥāḥ) on the basis of one or more exemplars of the original Greek. But it can be excluded that version B of De Caelo, neither extensive nor intensive in detail, should go back to Ḥunayn.

While the mention of Ḥunayn’s Iṣlāḥ may have been an added gloss in the Fihrist, the mention of a second work by the famous translator, both in the Fihrist and in other sources, may well be authentic, and what is more, can be identified with an extant treatise on De Caelo. Ḥunayn revised many an older translation, mainly of medical but also of some philosophical sources, into both Syriac and Arabic, and in his Epistle on the Available Translations of Galen he lists not a few older versions, Syriac and Arabic, which he revised (aṣḥāḥ) on the basis of one or more exemplars of the original Greek. But it can be excluded that version B of De Caelo, neither extensive nor intensive in detail, should go back to Ḥunayn.

While the mention of Ḥunayn’s Iṣlāḥ may have been an added gloss in the Fihrist, the mention of a second work by the famous translator, both in the Fihrist and in other sources, may well be authentic, and what is more, can be identified with an extant treatise on De Caelo. After giving his information of the translations, Ibn al-Nadīm adds that “by Ḥunayn, there is something on this [sc. De Caelo], viz. the ‘Sixteen Questions’”. Then, Ibn Abī Usaybī’a (d. 668/1270), in his lexicon of the Generations of the Physicians (cf. ‘Uyūn al-anbāʾ fī tabaqāt al-atibbāʾ, vol. 1, p. 200.1 ed. Müller) lists among the works of Ḥunayn (a) “Summaria of the Book on the Heaven and the world” (Ḡawāmi’ kitāb al-Samāʾ wa-l-ʿālam), and then, (b) “Compendium of the comments of the ancient Greeks on Aristotle’s book On the Heaven and the World” (Ḡawāmi’ taṣīr al-qudamāʾ al-Yūnāniyyīn li-kitāb Arīṣṭālīs fī l-Samāʾ wa-l-ʿālam). These very “Sixteen Questions” on De Caelo, indeed constituting a compendium of the cosmological parts of De Caelo, Books I and II, are preserved in a Middle Latin version Liber Celi et mundi, transmitted under the name of Avicenna, incipit: “Collectiones expositionum ab antiquis grecis in libro Aristotelis de mundo qui dicitur celi et mundi”.

The Latin Liber Celi et mundi, directly dependent on an Arabic original, is attributed to two 12th century translators, Domenicus Gundissalinus of Toledo (d. c. 1190) and Johannes Hispalensis of Sevilla. The late 13th century Hebrew version made by Šlomo ben Moše is clearly derived from the Latin, but reworked, with considerable changes and additions.


In the sixteen chapters of this book, the author gives a paraphrase of De Caelo I.1, I.2, I.3, I.5, I.8, II.1-2, II.4, II.6, II.7, II.8. Chapters 10, 12, 14 and 16 of the ps.-Avicenna are not paraphrases of De Caelo texts, but elaborate on related questions of the celestial influence on the sublunar world (so does ch. 16, a simplified account of the nature and qualities of the four elements, but this is quite independent from Aristotle's De Caelo).

Miguel Alonso,30 relating the subsequent words of the *Fihrist* on the Arabic translations, *wa-li-Ḥunayn fīhi šayʾ* to the preceding mention of Themistius’s commentary, instead of to Aristotle’s *De Caelo* itself, tried to find evidence in the Latin ps.-Avicenna of extensive use of Themistius’s *Paraphrase*. On closer inspection, Gutman confirmed rather close parallels with the ps.-Avicenna in three passages, but these “prove nothing more than that the author of the *Liber celi et mundi* knew of Themistius’s work”; for the rest, most of the “quotations” claimed by Alonso simply refer to the content of the *De Caelo* itself. — The identification of the Latin *Liber Celi et mundi* with the “Sixteen Questions” and the *Ǧawāmiʿ* attributed to Ḥunayn in the Arabic *testimonia* does not rest on the supposed dependance on Themistius, but doubts may be raised.31 Whatever the results of further study, it is clear that Ḥunayn is not the revisor of *De Caelo* B⁶.

3.1.2.2. Abū Bišr Mattā and the commentary of Alexander

After Ibn al-Biṭrīq’s translation and Ḥunayn’s revision, the *Fihrist* names Abū Bišr Mattā as a translator of *De Caelo*: “He translated part of the first book”, continuing: “Alexander of Aphrodisias commented on a part of the first treatise of this book”, and in the notice devoted to the works of Abū Bišr, mentions that he was the translator of Alexander’s commentary as well (v. *infra*, § 2.1.1, *Fihrist*, p. 250.29 and p. 264.1-2 Flügel; the added note, p. 264.2, that Yahyā ibn ʿAdī revised his version is due to a textual confusion with the information on Themistius’s commentary).

This is confirmed by Ibn al-Sarī, *Bayān al-ḫaṭaʾ* [quoted in full, *infra*, § 3.2.1, pp. 226f.] who still was able to consult “part of the first treatise” (*baʿḍ al-maqāla al-ūlā*) with Alexander’s commentary, but found this irrelevant for his problem concerning the passage in Book III. There is no further trace of Alexander’s commentary in the Arabic tradition, except for the quotations found in the commentary-paraphrase of Themistius.

Like most translators of his generation, Abū Bišr Mattā ibn Yūnus al-Qunnāʾī (d. 328/940) had no Greek but translated from Syriac into Arabic; still, the wide range of school commentaries at his disposal, translated by himself and his followers, enabled him to arrive at an adequate understanding of the Aristotelian logic, physics, and metaphysics.32 Hence it seems very probable that the revision of Ibn al-Biṭrīq’s Arabic version of *De Caelo* is none other than the version found in the lemmata of Aristotle’s text translated and transmitted along with Alexander’s literal commentary. B⁶ is indeed extending over part of Book I only, and is adapting the technical language of the translation to the standard terminology of logic and physics introduced by the Aristotelian school of Isḥāq and by the school of Baghdad founded by himself. In lack of an independent Syriac version of Aristotle, and ignorant of Greek, he made good use of Alexander’s commentary for some of the most relevant revisions of Ibn al-Biṭrīq’s version.

How did B⁶ find its way into our manuscript tradition, scanty and known from a single strand only? Ibn al-Sarī was active at the Artuqid court in the service of Temūr-Taš ibn Il-Ḡāzī (r. 1122-54); Mihrān ibn Manṣūr joined his successor Naḡm-al-Dīn Alpī (from 548/1154). It is possible that Mihrān incorporated the revised version of Mattā, found in the lemmata of what was available of Alexander’s commentary, and – as we see – still extant in Diyarbakr in his time, into his copy of Ibn al-Biṭrīq’s translation, and so constituted the exemplar of the Mhr family of manuscripts surviving in 16th century Iran: the sole witness of this branch of the *De Caelo* tradition in Arabic.

3.2. The Tenth-Century Translations of Aristotle and the Reception of the Greek Commentators

3.2.1. The Testimony of Ibn al-Sarī

In a full screening of all the Arabic versions of De Caelo available to him, the mathematician Abū l-Futūḥ Ahmad ibn al-Sarī gives the best and most detailed survey of the Arabic tradition up to the 11th century. In his treatise Explanation of an error occurring in a proposition mentioned in the third treatise of the Book on the Heaven and the World, he refutes Aristotle’s assumption, put forth in De Caelo III 8, 306 b 3-8, that there are two regular solids which can fill up a three-dimensional space, the pyramid and the cube (whereas in a plane, three regular plane figures can fill the space: the triangle, the square, and the hexagon).


Ibn al-Sarī starts from Aristotle’s critique of Plato’s Timaeus, where he says (De Caelo III 8, 306 b 3-9) that “in general, the attempt to give a shape to each of the simple bodies is unsound”, and continues that “it is agreed that there are only three plane figures which can fill a space, the triangle, the square, and the hexagon”, and only two solids, the pyramid and the cube”. After an exposition of the argument, Ibn al-Sarī declares his perplexity at the Philosopher’s statement – in fact, cubes only can fill a space. In order to confirm his suspicion, improbable as it might seem, that the Philosopher should have committed a severe blunder “even if entangled in sleep” (fī l-manām mutayyam), he first excludes the possibility that it was “due to a mistake of the translator of this book, viz. Yahyā ibn al-Biṭrīq”, (quoted p. 57.1 as naql Yahyā ibn al-Biṭrīq min al-suryānī ilā l-ʿarabī) and proceeds to check on the other translations:

So I looked at the version of this book made by Abū ʿAlī ʿIsā ibn Zuʿrā, from Syriac into Arabic, and found the passage to be likewise, as also the version of Abū l-Faraġ ʿAbdallāh ibn al-Ṭayyib, made from Syriac into Arabic. Hence I turned to the commentaries, especially to those of the Greeks since they are more knowledgeable with respect to the author’s intention in this book. As is well known, there is no ancient commentary on this book available except the commentary of Themistius, found complete, and the commentary of Alexander, extant for part of the first book.34 When we looked into the commentary of Themistius, we found that he made a full commentary of the passage, explaining that the fiery substances (al-nāriyyāt)

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34 Alexander’s commentary is, of course, irrelevant for Ibn al-Sarī’s problem because the passage in question occurs in Book III. He confirms Ibn al-Nadīm’s statement that only part of Book I of De Caelo was translated by Abū Bišr Mattā (v. supra, pp. 214f.).
fill the empty space (al-ʃaḏaʾ) in two ways (ʿalā waḏhayn), but these two ways are not valid but are void in face of the principles of geometry. So I followed up this passage in the Compendium (iḥtiṣār) that Nikolaos made of this book, but found that he did not go into the point at all.\footnote{The Epitome (muḫtaṣar) of Nicolaus of Damascus: presumably the one found in his Philosophy of Aristotle. See H.J. Drossaart Lulofs, Nicolaus Damascenus On the Philosophy of Aristotle: Fragments of the First Five Books, Brill, Leiden 1965 (Philosophia Antiqua, 13), pp. 152-65 (ascribed to Nicolaus of Laodicea in recent scholarship).} Then we turned to the commentaries of the moderns and their glosses. We found Quaestiones presented by Abū ʿAli ibn Zurʿa to Yahyā ibn ʿAdi on this topic, viz. “Why do only two bodily shapes fill the space”, and other matters, dependent on the discourse of Themistius in his commentary on this passage, and Yahyā ibn ʿAdi replied to these questions with answers missing the truth altogether [this is quoted in an Appendix at the end of the treatise, pp. 71-79 Türker].

Likewise, we found that Abū Sahḥ al-Mašiḥī in his Epitome of this book missed the point altogether in that he passed over the bodily shapes and replaced them with the corresponding plane shapes.\footnote{Abū Sahl Ṭṣāʿ ibn Yaḥyā al-Mašiḥī (m. 1010), a Christian physician from Khorasan and one of Ibn Sīnā’s teachers in medicine. His Talḥīṣ kitāb al-Samāʿ wa-l-ʿālam li-Arisṭū is extant in the ms. Leiden, Bibliothek der Rijksuniversiteit, Acad. 44, no. 4.} Now we looked into this matter in the commentary (ṣarḥ) of Abū l-Farāḡ ibn al-Ṭayyib and saw that he quibbled around the comments of Themistius, confounding these with other things of his own, and compounding the error, already mentioned, found in Themistius’s commentary and in the [Aristotelian] text. There is another commentary by this Abū l-Farāḡ without the text [i.e. the lemmata] of Aristotle’s discourse, in this he reports the error just as in his greater commentary.

Having heard of annotations [i.e. a literal commentary of scholia] by al-Fārābī on this book, dictated to Ibrāḥim ibn ʿAdi, I searched for this in the City of Peace [Baghdad] but could not find it, so I obtained a copy from Damascus and consulted the relevant passage, but found that he did not broach the issue and did not add any comment on the matter (Ibn al-Sarī, Bayān al-ḫaṭaʾ, pp. 54.18-55.17 Türker).

Coming to the conclusion that the text was transmitted as it stands in the translations, and might have been added in the Greek, its faulty implications being overlooked out of ignorance by the commentators, Ibn al-Sarī is convinced that the truth of the matter must prevail, true to Aristotle’s own precept – amicus Plato, sed magis amica veritas (giving a full quotation of Eth. Nic. I 4, 1096 a 11-17!). He proceeds with quoting the Arabic translations of 306 b 3-9:

- in the translation of Yahyā ibn al-Biṭrīq from Syriac into Arabic (p. 57.1-9),
- in the translation of Abū ʿAli Ḥṣā ibn Zurʿa from Syriac into Arabic (p. 57.9-15),
- in the translation of Abū l-Faraḡ ʿAbdal-lāh ibn al-Ṭayyib from Syriac into Arabic (p. 57.16-23).

The translation of Aristotle’s De Caelo by Ḥṣā ibn Zurʿa, a close disciple of Yahyā ibn ʿAdi and like him a theologian of the monophysite Christian church, is not attested elsewhere; accordingly, Ibn al-Sarī’s quotation is the only specimen we have of his version. His version of the commentary of Themistius, on the other hand, is known, but is preserved in Hebrew and Latin only (see next section).

Ibn al-Sarī’s information on the translation and comments of Abū l-Faraḡ ibn al-Ṭayyib, and his quotation of an excerpt from his version not preserved otherwise, form a valuable addition to our information on the work of this 10th/11th century physician, philosopher and Nestorian churchman (v. infra, § 4.2).

\footnote{The Epitome (muḫtaṣar) of Nicolaus of Damascus: presumably the one found in his Philosophy of Aristotle. See H.J. Drossaart Lulofs, Nicolaus Damascenus On the Philosophy of Aristotle: Fragments of the First Five Books, Brill, Leiden 1965 (Philosophia Antiqua, 13), pp. 152-65 (ascribed to Nicolaus of Laodicea in recent scholarship).}
3.2.2. The Commentary of Themistius: Yaḥyā ibn ʿAdī and ʿĪsā ibn Zurʿa

Finally, Ibn al-Sarī quotes Themistius’s commentary-paraphrase on De Caelo III 8 in full, and by criticizing his exposition – supporting Aristotle’s statement – point by point, the mathematician proves that cubes only can fill the space.

In order to expose the truth of the matter, even though it should imply contradicting those who first guided us, we shall first establish the text of Aristotle’s words on this matter according to the different translations, and also the text of Themistius in his commentary on this matter (p. 56.12-14 Türk). The commentary of Themistius is mentioned already by Ibn al-Nadīm:

There is a commentary by Themistius on the complete book that Yaḥyā ibn ʿAdī has translated, or the translation of which he revised (al-Fihrist, p. 250.30 Flügel).

This is clarified by Ibn al-Sarī in his treatise. He states that his commentary was partially translated into Arabic by Abū Bišr Mattā from the Syriac version of Ḥunayn ibn Ishāq and revised by Yaḥyā ibn ʿAdī (p. 56.12-23 Türk), and he adds (p. 68.7-9 Türk): “There is a marginal note (ḥāšīya) on this passage, either by the translator, Abū Bišr Mattā, or rather – as it seems to me – by the revisor (li-l-muṣalliḥ), Yaḥyā ibn ʿAdī”. We may conclude from these remarks that Yaḥyā ibn Adī did not make a translation of his own, but only revised his teacher’s work.37

The commentary-paraphrase of Themistius (4th century A.D.), the only Hellenistic commentary on De Caelo which was available to Arabic authors completely, is known in a Hebrew translation from the Arabic of Yaḥyā ibn ʿAdī (d. 974), made in A.D. 1284 by Zeraḥyah b. Yiṣḥāq b. Sheʾaltiʾēl Ḥen (Gracian, v. Steinschneider, Die hebräischen Übersetzungen des Mittelalters und die Juden als Dolmetscher, Kommissionsverlag des bibliographischen Bureaus, Berlin 1893, p. 125), and translated from Hebrew into Latin by Moses Alatino (16th century).


In Themistius, Ibn al-Sarī found an exhaustive interpretation of the passage, quoted in full and discussed in the present treatise, but found unsatisfactory in the mathematician’s judgment. Finding the Arabic of the translation maimed by takalluf katīr wa-ḥurūq ’an maḏhab al-ʿArab fi l-kalām, clumsy and incorrect, he goes on to quote and analyze Themistius’s commentary sentence

37 The passage quoted by Ibn al-Sarī (pp. 58.3-70.1 Türk, interrupted by comments of the author) corresponds to pp. 133.26-134.36 Landauer of the extant Hebrew version (pp. 197.34-199.34 of the Latin version).
by sentence. As a final resource, the mathematician looked into the commentaries and glosses of the “moderns” (ṣurūḥ al-ḥadaṯ wa-taʿālīqhim): in the first instance, the Suʿālāt submitted by Ibn Zur’a to Yahyā ibn ʿAdi on the question; this is reproduced in full in an appendix to his treatise. In the final analysis, finding all of the commentators missing the mark, Ibn al-Sarī goes on to prove beyond doubt that among the regular solids, only the cube can fill an empty space.38

4. Translation and Commentary of Abū l-Farağ ʿAbdallāh ibn al-Tayyib

4.1. Abū l-Farağ ibn al-Tayyib

After the translatio vetus of Ibn al-Biṭrīq (and independently of its partial revision B by a later student of this text), a second version was made by the 10th/11th century physician and philosopher, Abū l-Farağ ʿAbdallāh ibn al-Tayyib. One of the last students of the Baghdad school of Christian Aristotelians in the tradition of Mattā ibn Yūnus and Yahyā ibn ʿAdi, he had studied with Ibn al-Samḥ (d. 1027) and al-Ḥasan ibn Suwār ibn al-Ḥammār (d. 1020), and was appointed chief physician of the Bīmāristān of Baghdad, founded by the Būyid ʿAḍud-al-Dawla. He was also secretary of the Nestorian katholikos of Iraq, Elias 1st (kātib al-Ǧāṯalīq), and a renowned theologian and historian of the Nestorian church. He died in 435/1043.


In the field of philosophy, he was most active as a commentator of Aristotle, especially of Aristotelian logic; his literal commentaries of Aristotle’s Categoriae and of Porphyry’s Isagoge have survived. Only a few of his translations from the Syriac – like his teachers, he had no Greek – are extant, among them ps.-Aristotle, De Virtutibus et vitiis,39 but we have a number of his epitomes (called Žimār ‘collection of fruits’ by the author) of both philosophical and medical Greek texts.

While the list of his writings given in Ibn Abū Uṣaybiʿa’s ʻUyūn al-anbā fi ṭabaqāt al-atibbā (vol. 1, pp. 240-1 Müller) does not name a commentary or translation of De Caelo, a number of testimonia witness to the existence and readership of both his version and commentary. What is more, a large fragment of De Caelo in an independent Arabic version, preserved in manuscript, can be shown to be his work (a) from the identity of quotations from this version given under his name, (b) from its structural framework and the references given in an accompanying commentary, referring to the author’s “great


commentary’ (tafsīrunā al-kabīr), and – linking this evidence with Ibn al-Ṭayyib – a fragment of this very ‘Great Commentary’, closing with the end of Book II where both the title and author are named.

Like other translations and commentaries made by Ibn al-Ṭayyib, the annotated translation of Aristotle’s _De Caelo_ was divided into lecture units (taʿālīm, the πράξεις of the Alexandrian commentators) and was accompanied (a) by a running commentary, here given in the form of short marginal notes, called λέξις in the Alexandrian cursus, and (b) a Great Commentary, i.e. a literal commentary consisting of successive lemmata and commentaria (v. infra, § 4.7). We may regard this as a hallmark of his method, found in further extant commentaries of this author modelled on the Alexandrian lecture course on the works of Aristotle and other ancient authors, but fallen into desuetude with the transmitters of Graeco-Arabic learning other than himself. An exception is the system of _Prolegomena_ and _προτεχνολογούμενα_ of the Alexandrian introductions to Aristotle and his individual works, still found in some of the later commentaries and _summae_ of Aristotelian philosophy (notably those of Averroes).

It is this structure that provided the first hint for identifying the fragmentary, acephalous text of the unique codex with Ibn al-Ṭayyib’s translation, mentioned and quoted in a number of testimonia. Certain peculiarities of the translation on the one hand, and the discovery of an authored fragment of Ibn al-Ṭayyib’s _Great Commentary_, helped to confirm the identity of the extant text with the work of the 10th/11th century Aristotelian scholar, and to make a new assessment of his influence.

4.2. Testimonies and Quotations

4.2.1. Memorandum of a Disciple of Ibn Sīnā

During the sack of Isfahan by the troops of Masʿūd of Ghazna in 1034, Ibn Sīnā lost the manuscript of his yet unfinished _Inṣāf_, as well as most of his library. One of his pupils offered to buy for him the books of the Baghdad Aristotelians in order to furnish the basis for recovering the sources necessary for reconstructing his work. A detailed Memorandum is preserved in ms. Oxford, Bodl. Hunt. 534, ff. 13bult.-15b2 (preceding Ibn Sīnā’s _Mubāḥaṯāt_), giving a list of the works obtained:

These books [by Ibn al-Ṭayyib] that became available to us are those which he composed on the _Eisagoge_ [of Porphyry], _Categories_, _De Interpretatione_, _Sophistici Elenchi_, _De Caelo_, _De Sensu et sensato_, and _Metaphysics_.


4.2.2. Ibn al-Sarī

Detailed informations on Ibn al-Ṭayyib’s work on the _De Caelo_, and excerpts from his translation, are given by the mathematician Ibn al-Sarī, as quoted in full _supra_, § 3.2.1. Apart from the Arabic translation of the Aristotelian text, he knew both a long and a short commentary on _De Caelo_ by Ibn al-Ṭayyib.

4.2.3. Ibn Ruşd, Averroes, _Comm. mag. in Aristotelis De Caelo_

In his _Great Commentary_ (Tafsīr, also Šarḥ) on _De Caelo_, finished near the end of his life, Ibn Ruşd deplores that for this important work he had only one of the old translations from the school of al-Kindī at his diposal (Averrois Cordubensis _Commentarium Magnum super libro De celo et mundo Aristotelis_ (above, n. 26), liber III, c. 35.6, p. 567 Carmody-Arnzen). Still, in some cases, where Ibn al-Bītrīq’s translation baffled him, he took recourse to an alternative version.
a) *De Caelo* III 6, 304 b 21-30 (according to Ibn al-Biṭrīq’s Arabic version, pp. 338.15-339.9 Badawī):

“We want to inquire first whether the elements are of infinite duration and eternal, or generated and falling under destruction. (...) We say: It is impossible that the elements should be eternal. For we see that fire and water and each of the simple bodies dissolve and decompose, but either this dissolution and decomposition is infinite, or it must stop. Now we say, if the dissolution should be infinite, the time of dissolution will be infinite as well, and also the time of composition [read. al-tarkīb] will be infinite, because every part of the parts of the element will dissolve at one time and will be composed at another time” (etc., leading to the absurdity of two concurring processes of infinite duration).

In Ibn Rušd’s text, the second part of the disjunction li-anna kulla ġuz in min aġzā’i l-ustuqussi yanḥallu fi zamānin āhara wa-yatarakkabu fi zamānin āhara was omitted through homeoteleuton, in the textus as well as in the lemma quoted in the commentary. The integral text was found “in the translation of Abū l-Faraq”.

- Averroes, *Comm. magnum in De Caelo*, III comm. 52, p. 599.83-88 Carmody-Arnzen: Deinde dixit Quia omnis pars elementi dissolviatur in alio tempore, idest illud quod corrumpitur corrupitur in alio tempore ab eo in quo generatur, scilicet quod illum de quo dicitur quod iam corrumpitum est postquam fuit: *in translatione Albufarage* est scriptum “quod omnis pars elementi corrumpitur in tempore, et generatur in alio”; et hoc non indiget expositione.

b) *De Caelo* III 7, 305 a 33 - b 5. In his discussion of the theories about the way in which one element may come forth from another (ὁ τρόπος τῆς ἐξ ἀλλήλων γενέσεως), Aristotle first refutes Empedocles and Democritus. If generation is the ‘coming out’ of a simple body from another (ἐνυπάρχον ἐκκρίνεσθαι), it is an illusion.

305 b 3-5 (οἱ περὶ Ἐμπεδοκλέα καὶ Δημόκριτον) ποιοῦντες (…) φανομένην γένεσιν· ἐνυπάρχον γὰρ ἕκαστον ἐκκρίνεσθαι φασίν, ὥσπερ ἐξ ἐγκατάθηκος τῆς γενέσεως ὥσπερ, ἀλλ’ ὧν ἐκ τίνος ὑλῆς, οὐδὲ γέγοναντοι μεταβάλλοντος. (“If generation is an excretion of one body from another, as they say, generation is an illusion. They make it a process of excretion from a body of what was in it all the time—as though generation required a vessel (ἀγγεῖον) rather than a material—so that it involves no change of anything”, trans. Stocks).

Arabic (Ibn al-Biṭrīq’s version, as read by Ibn Rušd):

Lākinahum aṯbatū bi-ḏālika kawnan mumawwahan, wa-ḏālika qālū inna l-usṭuqussāti kāminatun baʿḍuhā fī (v.l. min) baʿḍin, wa-innamā kāna baʿḏūnā min baʿḏin ka-zuhūrī (v.l. li-zuhūr) baʿḏīḥā min baʿḏin, ka-anna l-kawna ināʾun (v.l. innamā) taḥruğu minhu l-aśyāʾu wa-taẓharu, lā anna l-aśyāʾa takūnu minʿunṣurin-mā bi-stiḥālatin wa-taḍayyurin.


Sed ipsi confirmant per hoc generationem sophisticam: dixerunt enim quod elementa sunt clausa exinvicem et egredientia exinvicem, sicut facere filios, et quod generatio non est nisi (innamā) exitus rerum, sicut ignis a lapide apud impulsionem, neque quia res generatur exinvicum secundum transmutationem et alterationem.

Latin, trans. Gerardus Cremonensis (p. 233.75-78 Opelt):

Verum ipsi affirmavenerunt per illud generationem fallacem; quod est, quoniam ipsi dixerunt, quod elementorum alia sunt occultata in aliis et sunt egredientia alia ex aliis, sicut ortus et partus, et ex generatione quidem non egredientur res et apparent, sicut ignis ex lapide apud percussionem, quoniam res generatur ex materia sua per alterationem et mutationem.
The example “sicut ignis a lapide apud impulsionem” (“like fire from a stone when it is struck”), is missing in the Arabic codices of Ibn al-Bīṭrīq’s version, and probably goes back to a gloss in the Western tradition; as Averroes rightly remarks, it does not fit the context (generation by excretion). For a better example, he turns to Abū l-Faraḡ ibn al-Ṭayyib’s translation:

- Averroes, *Comm. magnum in De Caelo* III, comm. 56, p. 612.68-80 Carmody-Arnzen: Et dixit Secundum alterationem et transmutationem, quia sic est generatio apud liceationem esse in capitulo translationis non in capitulo transmutationis, et exitus ignis a lapide est ex capitulo alterationis et transmutationis; et tamen induxit exemplum de eo quoniam apparat, et non est ex capitulo translationis. Et in *translatione Albefarag* est alium exemplum nobilium, et est illud:

  dicunt enim quod elementa sunt clausa adin vicem, et non generantur eoxin vicem nisi secundum apparentiam eorum abin vicem, ita quod generatio non est nisi exitus rerum, sicut exitus eius quod exit a vase, non quod generentur eoxin vicem secundum alterationem.

  Et hoc est intellectum per se, sed videtur quod iste vir non transmit tum nisi secundum intentionem, non secundum verba.

The “preferable example” (probably, *miṯāl afḍal*) of excretion of one body from another turns out to be a faithful rendering of the Greek ἀγγεῖον, Arabic *ināʾ* (Latin, *vas*); this figures in Ibn al-Bīṭrīq’s translation as well, but was misread (*innamā* for *inān*) by the transmitters of most branches of the manuscript tradition. — Being unaware of the textual corruption, Averroes praises Ibn al-Ṭayyib’s translation for being faithful to the intention, not sticking to the words.⁴⁰

De Caelo III 7, 305 b 10-20. While according to Aristotle generation is the change (μεταβολή) of some matter into what is generated, he rejects the view of Empedocles that a simple body is coming out of another body as if the latter were a vessel (305 b 4-5 ἐνυπάρχον ἐκκρίνεσθαί φασιν, ὥσπερ ἐξ ἀγγείου τῆς γενέσεως οὔση). 305 b 10-20 “Etì dê tōn meigménon sōmatón ouk ánangkê krymòthén òataron àei péleíos tōpon ëprésèin· tôná dê éx òdstas aîr gêntai, péleíos katalambánai tōpon· to gàr leptoperésteron ën péleíon tòpo gîngetai. Phænérôn dê tōutó ge kai ën tê metaβásai· diatimèzéioun gàr kai pneúmatoménon tou ὅγρου bêgnetai tâ periègnetai tòus órkous ággieia diá tên stenogwriá. Ἡστε éi mêb òlów mé ëstì kexinov μη δʹ ἐπεκτενεῖται tâ sómatá, kathátero fásin ov taîta légontes, fáneron tî ëdúnaton· éi dê ëstì kexinov kai ëpéktauas, ìllhgon tê éx ánangkê àei péleíos tōpon ëpilambánaiou tî chrêzômenov (Trans., based on Stock and Kouremenos: “Again, when one of the bodies that are mixed is separated, there is no reason why it should always take up more space, but when air is generated from water, it occupies more space, since the finer body takes up more space. This is obvious also in any case of transformation. As the liquid is converted into vapour or air the vessels which contain it will burst due to lack of space. Now, if there is no vacuum at all, and if, as those who take this view say, there is no expansion of bodies, the impossibility of this is manifest; and if vacuum does exist and expansion does occur, there is no accounting for the fact that the body which separates out occupies of necessity a greater space”).

Ibn al-Bīṭrīq’s translation, used by Ibn Ruṣd for the lem mata of the *Commentarium magnum*:

“We say further that the bodies mixed with one another, when one is separated from the other, it will not take more space than its other space (*sc.* in the state of mixture) necessarily. But the air, when it is generated from water, takes more space than it took in the first instance, and that is because the finer body is in (*min*: *leg. ft*) a greater space. Now this is evident and clear in [a process of] transformation and change (*fī l-istiḥāla*

wa-l-nuqla): when moisture evaporates and becomes hot, the containing vessel bursts and comes apart due to its becoming too narrow for it. If this is the case, and if there is no void and no vacuum at all into which it would expand and spread out – as the advocates of latency (kumūn ‘inherence’ of a body in another) say –, it is clear and manifest that it is impossible that the body takes up more space than its [own] space when it appears and comes out. But when void and vacuum do exist, and expansion and spreading out, it is absurd that the body separating out from another body, should occupy more space than its former space”.


Et dicamus etiam quod corporum miscibilium cum separatur unum ab altero, non occupat maiorem locum altero necessario. Aer autem, cum fuerit ex aqua, occupat maiorem locum suo priori, corpus enim subtillius est in maior loco. Et hoc manifestum est in alteratione et translatione, quoniam cum humiditas fuerit vapor et inflatur, extendit vas continens ipsum, et frangitur cum non possit ei sufficere vas. Et cum ita sit, et nihil est vacuum in quo expandantur corpora, sicut dicunt facientes latitationem, manifestum est quod impossibile est ut corpus recipiat maiorem locum suo primo loco.

Omitting the last part of the Arabic lemma (in italics in our quotation), corresponding to 305 b 18-20 εἰ δὲ ἔστι … χωρίζομενν, due to homoeoteleuton.

- Averroes, *Comm. magnum in De Caelo,* c. III, p. 58.39-56 Carmody-Arnzen: Deinde dixit

Et cum ita sit, et nihil est vacuum, potest intelligi: Et si generatio non est nisi exitus ab aere, et universaliter corporis subtillis a subtill, et impossible est vacuum esse in quo corpora expandantur et transferantur ex magnitudine in parvitatem, cuius expansionis causa apud facientes latitationem sit vacuum, manifestum est quod impossibile est ut idem corpus cum transfertur occupet ampliorum locum quam ante; et si concesserimus eis vacuum esse, non est possibile eis dicere etiam quod cum corpus latet, est minus, et cum apparat est maius; sed Aristoteles pertransivit hanc partem divisionis et verificat hanc expositionem, quia hoc videmus propalatum in translatione Albefarag. Dixit enim:

Et cum ita sit, et nihil est vacuum omnino in quo corpora expandantur, manifestum est quod est impossibile ut occupent maiorem locum primo cum exierint et apparuerint; et si fuerit vacuum cum quo adaptatur expansioni, impossibile est ut corpus occupet maiorem locum suo primo loco cum separatum fuerit ab alio corpore (min mawḍiʿiḥī iḏā mā ẓahara wa-ḫaraǧa), idest quod impossible contingit huic positioni sive concessum fuerit vacuum esse et quod est causa transmutationis corporis ex magnitudine in parvitatem, sive non.

Ibn Rušd found the full text of Aristotle’s two-sided argument against the advocates of generation by excretion in Ibn al-Ṭayyib’s version only.

4.2.4. Quotations from Ibn al-Ṭayyib’s Translation in the Manuscript Family Q of version B

a) The Eastern group of manuscripts presenting Ibn al-Bīṭrīq’s version replaces the text corresponding to *De Caelo* I 7, 275 a 28 – b 2 ὑποκείσθω … διῄρηται, probably due to omission through homoeoteleuton in the standard version B, by a different translation. Here, both the Haydarābād and Isfahān mss. add in the margin (ms. ’U 441, f. 23a; ms. Ṣ, f. 18b):

bāḏīḥī l-ḥuṭṭūt wa-l-ḥurūfʿaḏāʾ mā ṭabata fi naql Ḫabdallāh ibn al-Ṭayyib kātib al-Ǧāṯalīq.

These lines and the letters [representing them, sc. in the mathematical proofs] correspond to those established in the translation of Ḫabdallāh ibn al-Ṭayyib, secretary of the Katholikos.

The terminology conforms with Ibn al-Ṭayyib’s usage: ǧism for σῶμα against Ibn al-Bīṭrīq’s ǧirm, mutanāḥī for πεπερασμένον against ḥū Ṽiḥiʿa in the context of version B, ḥasbu for μόνον against faqat.
b) Also in the Q family of manuscripts of Ibn al-Bīṭrīq’s translation, the transliterated term ἀπόφασις for Greek ἀπόφασις is replaced by the Arabic term ناقد in I. 12, 282 a 4, 7, 10. In other instances, I 12, 281 b 33 and 282 a 6, ἀπόφασις has been left unchanged. Then at 282 a 14, where the Arabic abūfāsīs is taken from the context but has no verbal equivalent in the Greek, a marginal note in ms. Ḥaydarābād 441 (f. 41b) explains that this is replaced by ناقد in Ibn al-Ṭayyib’s version – this is indeed the case, as can be seen from the extant part in ms. P:


The translation of the šayḥ Abū l-Faraq, secretary of the Katholikos, has replaced this in [the reading of] the exemplar (muntasah), by ناقد (opposite), and this is correct, since indeed he means the negation.

Ms. Isfahān 301 (f. 36b) has a similar gloss at this place, but the copyist misunderstood the reference to Ibn al-Ṭayyib’s change in terminology:


The translation of the šayḥ Abū l-Faraq […] has replaced ‘ḍidd’ by ‘ناقد’, and this is correct [etc.].

c) In the manuscript family of version B (v. §3.1.1), a group of Iranian manuscripts going back to a common subarchetype Mhr and best represented by ms. Mashad, Āstān 149, a lengthy passage translating De Caelo I 2, 269 a 2-18, missing from the copyist’s exemplar, has been supplied from a different version, but not explicitly attributed to one of the translators. The terminology would not exclude Ibn al-Ṭayyib.

4.3. The Manuscript

4.3.1. General Description and Contents of the Manuscript


Ancien fonds 597; v. W. MacGuckin de Slane, Catalogue des manuscrits arabes, Impr. nationale, Paris 1883-95, pp. 399-400 — URL of digital reproduction: http://gallica.bnf.fr/ark:/12148/btv1b525084694/. 148 folia, 18/19×.5/9 cm. 19th century red leather binding, with embossed stamp of the Bibliothèque royale. A multi-text manuscript bound up of four parts written by different hands, with an added title and colophon. The fictitious title f. 1a, Silsilat al-tawārīḫ and incipit, and the apocryphal colophon f. 148, written by the same coarse hand, were fabricated in order to convey the appearance of a single, complete work, giving (f. 148) 488/1095 as the alleged date of completion. The second piece contains a reading note (qirāʾa) dated 596/1199-1200.

• fol. 1a. Silsilat al-tawārīḫ [fictitious title on an added leaf before the acephalous treatise beginning on f. 2a, and corresponding to a colophon added at the end of the volume, f. 148].

Inc. f. 1b 1-6: “ḥāḍa kitāb fi silsilat al-tawārīḫ wa-l-bilād wa-l-buḥūr wa-anwāʿ al-asmāk wa-fihi ‘ilm al-falak wa-‘āğā’ib al-dunyā wa-qiyāṣ al-buldān wa-l-ma’mūr minhā wa-l-waḥš wa-‘āğā’ib wa-gayr dálika wa-huwa kitāb nafīs”.

• ff. 2-56. [Aḥbār al-Ṣīn wa-l-Hind] The first part written by Sulaymān ‘the Merchant’ or summarized from his accounts (as indicated by a reference fol. 6a10); the second part a supplement by Abū Zayd al-Ḥasan al-Sirāfī. Ed. as Silsilat al-tawārīḫ by Eusèbe Renaudot: Anciennes Relations des Indes et de la Chine, de deux voyageurs Mahometans, qui y allèrent
Ibn al-Ṭayyib’s Arabic Version and Commentary of Aristotle’s De Caelo

f. 6a10. Quoting Sulaymān al-Tāǧir.


- 2, fol. 57. Table, in diwānī numerals, of the dimensions of several fortresses of Syria. In fact. this is part of the following piece:

- 3, fol. 58-62. “Misāḥat al-bilād al-ǧāriya fī mulk [...] Nūr al-Dīn ibn Zankī fī sanat arbaʿ wa-sittīn wa-ḥamsimi’a”. Memorandum written in 544 H. (1169 A.C.), shortly after the death of the sultan Nūr al-Dīn ibn Zangī, on the dimensions of several fortresses guarding the dominions of the dynasty, noting the distances between one fortress and the next.

- 4, foll. 63-124. Acephalous fragment of an Arabic version of Aristotle’s De Caelo, with marginal commentary.

- 5, foll. 125-147. An acephalous treatise, beginning with the second leaf of the introduction, on the anatomy and usefulness of the parts of the human body, in form of questions and answers. The extant part treats the hand and the arm. A very concise catechism, only remotely dependent on Galens’s De Usu partium. The paper and the scholarly handwriting (with sparing use of diacritical marks) point to an early, 11th-12th century dating of the ms.

- 6. The explicit, fabricated by the scribe of the fictitious title and incipit, is dated 488/1095.

4.3.2. Description of the De Caelo part of the manuscript

- foll. 63-124. Seven quires from a paper codex of considerable age. Collation notes (muqābala) occur at several instances (fol. 112b at the beginning of the 13th taʾlīm, item 106b beside the intermediate title of the 16th taʾlīm: “balaġat al-qir[a] wa-muqābalat al-dustū[r]”), but are not dated.


Paper, cut and writing of the relevant part of our ms. differ from the remaining pieces bound up into the volume. Being larger than other pieces bound up with it, the block was cut down by the bookbinder in order to make it fit the size, leading to some textual losses due to close trimming where the marginal comments were continued into the upper and lower margins. In the course of a recent restoration of the ms. in 1980, when a number of damaged areas were covered with transparent tape, and the volume was rebound, some passages still readable in a microfilm prepared in the late 1950s were effaced, and some of the comments written on the inner margins close to the fold were concealed.
The *De Caelo* part is written in a meticulous scholarly *nasḫī*. The main text of Aristotle’s work is written in fairly large, bold letters, and accompanied by marginal comments in smaller script in a column to the left of the main text. It is divided into larger units (*taʿlīm*, see below) and smaller pericopes of text followed by summary comments, set off by centered titles *Qāla Aristūṭālis* and *Qāla l-mufassir*. Each phrase bearing an annotation closes with a dotted triangle ⬞, establishing the correspondence with the marginal comments (*taʿālīq*).

The text is mostly unvocalized (but *tanwīn* for *ǧarr* and *nasb*, as also *šadda*, are occasionally provided), with punctuation being used sparingly, but given wherever ambiguity may occur, and with frequent *muhmal* signs added to letters *ḥ*, *r*, *ṣ*, and *ṭ*. Less familiar words and formations are fully vocalized in some rare cases (as fol. 111a: *yuharrimahu*). According to Middle Arabic usage, *hamza* is not noted in final position (*šay*, *samā*), and in the middle of words (*dāyim*).

### 4.3.3. Inventory of *De Caelo* texts

The single texts from Aristotle’s *De Caelo* are continuous in relation to the other pieces contained in the manuscript, but intermittent, and not in sequence. Put into the order of the Greek Aristotle, we have the following fragments:

<table>
<thead>
<tr>
<th>foll.</th>
<th><em>De Caelo ed. Bekker</em></th>
<th>contiguous pieces</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>110–119</td>
<td>I 9, 279 a 3–10, 280 a 34</td>
</tr>
<tr>
<td>2.</td>
<td>99–108</td>
<td>I 11, 280 b 1–12, 282 a 4</td>
</tr>
<tr>
<td>3.</td>
<td>89–98</td>
<td>I 12, 282 a 4 – 283 a 22</td>
</tr>
<tr>
<td>4.</td>
<td>120</td>
<td>I 12, 283 a 22–30</td>
</tr>
<tr>
<td>5.</td>
<td>121</td>
<td>I 12, 283 b 7–14</td>
</tr>
<tr>
<td>6.</td>
<td>124</td>
<td>I 12, 283 b 14–21</td>
</tr>
<tr>
<td>7.</td>
<td>78–73</td>
<td>II 1, 283 b 30 – 2, 285 a 1</td>
</tr>
<tr>
<td>8.</td>
<td>109</td>
<td>II 2, 85 a 16–31</td>
</tr>
<tr>
<td>9.</td>
<td>122–123</td>
<td>II 3, 286 a 17 – b 7</td>
</tr>
<tr>
<td>10.</td>
<td>63–72</td>
<td>II 4, 287 a 23 – II 6, 288 b 26</td>
</tr>
<tr>
<td>11.</td>
<td>79–88</td>
<td>II 6, 288 b 26 – II 9, 290 b 12</td>
</tr>
</tbody>
</table>

Altogether, from the original volume five full quires (quinions) of 10 *folia* each have been preserved (110-119, 99-108, 89-98, 63-72, 79-88), seven *folia* from a sixth quire (120, 121, 124, 73-76), and five *folia* from yet another quire (77, 78, 109, 122, 123).\(^{41}\) In this estimate, based on the proportional length of the lost text, we assume a loss of one leaf between foll. 120 and 121, and between foll. 78 and 109, respectively, and of two leaves each between foll. 124/73, 109/122, and 123/63. Not counting these gaps, the codex comprises the last third of Book I and the first half of book II, thus covering a quarter of the whole work.

### 4.4. Structure of the Text and Annotation.

The text of the translation of Aristotle, divided into pericopes introduced by the words *Qāla Aristūṭālis* (*sic*, with short *ḥ*), takes two thirds of each manuscript page, while the left third, in smaller script, contains a literal commentary. The latter is given in the form of short scholia (*taʿālīq*), paraphrasing the progress of the argument or explaining single concepts, introduced by *yurīdu* “he means” or (referring to single words or expressions) *ifham* “to be understood as”, “that

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\(^{41}\) In Vajda’s inventory, the gap between 283 a 30 and 283 b 7 is not noted, but there is no gap, as indicated by him, between 283 b 11 and b 14.
is to say”. A three-point triangle at the end of a line of the text serves as a referent to the relevant marginal comment. At the end of each pericope of 2-3 pages, the Commentator, introduced by Qāla l-mufassir, gives a summary of the preceding section. Then the text resumes with the next lemma, Qāla Arisṭūṭālis.

Text and commentary are divided, as in all other commentary works of Abū l-Farağ ibn al-Ṭayyib (on the authorship, v. §§ 4.1-4.2, on Ibn al-Ṭayyib as a commentator, § 4.7, p. 255ff.), into lecture units, Arabic taʿlīm (Greek πρᾶξις). Book I of De Caelo contained 18 such chapters, taʿlīm (references to the Great Commentary, al-Tafsīr al-kabīr show that this was divided into identical units of taʿlīm):

- Book I, taʿlīm 13 = De Caelo I 9, 277 b 27 [?] (fragment starting at 279 a 3) to 279 b 3 (fol. 110a – 112b): There cannot be more than one world.
- Book I, taʿlīm 14 = De Caelo I 10, 279 b 4 – 280 a 34 (fol. 112b–119b): Opinions on the duration of the world, if it is eternal, ungenerated or generated, imperishable or perishable.
- Book I, taʿlīm 15 = De Caelo I 11, 280 b 1 – 281 b 18 (fol. 99a–106b): Analysis of the terms ‘ungenerated’ and ‘generated, ‘perishable’ and ‘imperishable,’ ‘possible’ and ‘impossible.’ A thing cannot have a capacity for opposites at the same time.
- Book I, taʿlīm 16 = De Caelo I 12, 281 b18 – 282 b 2 (fol. 106b–108b, 89a–91a): That which is for ever cannot be for a certain time only, thus it is not generated; the ungenerated and the imperishable are one, and co-extensive with the existent (yatawassat al-mawḡūd, closing tafsīr, f. 91a).
- Book I, taʿlīm 17 = De Caelo I 12, 282 b 2 – 283 b 7 [? ms. fragment ending with 283 a 30, before a lacuna] (fol. 91a-98b, 120a-b): The ungenerated and the imperishable imply (‘follow’) each other, suppose potency of not-being and potency of being to coexist for an indefinite time to, is absurd.
- Book I, taʿlīm 18 [possibly one more taʿlīm for Book I, division lost in lacuna] = De Caelo I 12, 283b 6 [?]–22 [extant text 283 b 7–21 only] (fol. 121, 124): It is impossible that the ungenerated be perishable, or that the imperishable be generated, because if there was in it a potency to perish, this potency cannot be both realized and not realized with respect to a past state.

— The extant part of Book II starts with the second pericope of taʿlīm 1:

- Book II, taʿlīm 1 = De Caelo II 1 [283 b 26-30 missing due to loss of 2 folia], 283 b 30 – 284 b 5: The heaven is ungenerated and unperishable; it is the realm of divinity (mawḍiʿ li-Llāh).
  - De Caelo II 2: 284 b 6 – 285 a 1 (fol. 73–78) [285 a 2–a16 lost in lacuna of 2 folia], 285 a 16-a 31 (fol. 109) [285 a 31 – 286 a 2 lost in lacuna of 2 folia]: There is a right side and a left side in the heaven, also an above and a below, a front and a back.
- Book II, taʿlīm 2 = De Caelo II 3 [286 a 3-, lost in lacuna], 286 a 17 – b 7 (fol. 122-123) [286 b 7 - b 9 lost]: Motion and rest in the universe: The heavenly eternal movement must be circular; there must be a centre at rest, this is earth, and its contrary, fire, and corresponding movements, and there are several revolutions of the celestial bodies.– II 4 [286 b 10 - 287 a 22 lost in lacuna of 2 folia], 287 a 23 – 287 b 21 (fol. 63-65): The shape of the heavenly body is spherical.
- Book II, taʿlīm 3 = De Caelo II 5, 287 b 22 – II 6, 289 a 10 (f. 65b ult.-80.11): The rotation of the sphere of the fixed stars is from right to left. It is perfectly regular.
Book II, taʾlim 4 = De Caelo II 7, 289 a 11–35 (fol. 80 b 11 – 82 b 6): The nature of the stars is that of the heavenly body in which they exist; albeit emitting heat and light, they do not consist of fire. — II 8, 289 b 1 – 290 a 29 (fol. 82 b 7–87 b apu.): The motion of the stars: The sphere moves, while the stars are at rest, having no movement of their own.

Book II, taʾlim 5 = De Caelo II 8, 290 a 29 – b 11 (fol. 87 b apu.–88 b 11); II 9, 290 b 12 [breaking off after φανερὸν δ’ ἐκ τῶντων = wa-żāhirun mimmā qulnā] (f. 88 b ult.): the stars having no organ for movement, they have no self-movement.

For a detailed survey of some of Ibn al-Ṭayyib’s scholia and his short commentaria, intercalated between the pericopes of the text, v. infra, § 4.7.2.1, pp. 255ff. At several instances, the author refers to his Great Commentary (v. infra, § 4.7.3, pp. 265ff).

4.5. Ibn al-Ṭayyib’s Arabic Translation of De Caelo

Both the testimonies of Ibn al-Sarī and Ibn Rušd affirm that Ibn al-Ṭayyib made a translation of his own on the basis of a Syriac Vorlage (Σ). The evidence of the text further shows that he made a translation of his own instead of using an extant translation as the basis of his annotations and commentary. While for Porphyry’s Isagoge and Aristotle’s Categories he had Ishāq ibn Ḥunayn’s translation at his disposal, he must have been aware of the deficiencies of Ibn al-Bitriq’s, used by everybody else in lack of an alternative version. We do not know if the partial revision Bc was at his disposal; in any case, it was not complete, and we cannot exclude the possibility that is was made at a later date (v. supra, § 3.1.2.2, p. 225).

While it can be shown from the indications mentioned above that Ibn al-Ṭayyib (a) made a translation of his own, and (b) translated from the Syriac, his translation is so close to Ibn al-Bitriq’s that we cannot forego the conclusion that he used the same Syriac text. At the same time, he may have drawn on additional material, such as another Syriac version, or – for his translation as well as for his commentary – one of the Greek commentators available to him in Syriac.

4.5.1. Translation and Interpretation

§ Common interpretamenta and additamenta Arb and ArT:

• I 12, 283 a 23: The proof of the mutual implication of ‘ungenerated’ and ‘unperishable’, demonstrated by way of a series of contrary / contradictory statements using letter symbols (cf. 283 a 1-3), is reversed and applied to proving the co-extension of ‘generated’ vs. ‘perishable’ / ‘ungenerated’ vs. ‘imperishable’. This may have been a gloss added in Σ or its Greek exemplar, adding yet another variant to the repetitious drill of 282 b 15 – 283 a 3.

• II 5, 288 a 12: Added conclusion, containing an alternative interpretation, of 288 a 10-12: (βέλτιστον γὰρ κινεῖσθαι ἁπλῆν τε κίνησιν καὶ ἄπαυστον), καὶ ταύτην ἐπὶ τὸ τιμιώτερον.

Arb = ArT “and (we say) that its (sc. the sky’s) movement proceeds from the most excellent place, and the most excellent place is the direction to its right. So it has now become clear and evident why the sky moves from the East to the West, and not from the West to the East”.

Whereas the Greek commentators explain τιμιώτερον as being the forward movement, in the Arabic it is explicated as being the movement from right to left, i.e. from East to West.

42 An instructive example for such repeated translations and revisions on the basis of additional Syriac sources is found in the Arabic versions of Aristotle’s Sophistici Elenchi; v. H. Hugonnard-Roche, “Contributions syriaques aux études arabes de logique à l’époque abbasside”, ARAM 3.1/2 (1991), pp. 193-210.
4.5.2. A Specimen Passage, I 9, 279 a 16 – b3: Comparative Analysis

For a comparison of the two Arabic translations of Ibn al-Bīṭrīq and Abū l-Faraǧ ibn al-Ṭayyib, here is a specimen passage in parallel layout, followed by a literal commentary. This is to demonstrate the dependence of both on a common Syriac Vorlage, as well as their differences regarding the textual basis, the techniques of translation, terminology, and style.

- *De Caelo* I 9, 279 a 16 – b 3 on the transcendent Beyond (τὰκεῖ), persisting for eternity (ἀκεῖ), immortal and divine (ἀθάνατος καὶ θεῖος):

  [279 a 16] ‘Εξω δὲ τοῦ οὐρανοῦ δέδεικται ὅτι οὔτ’ ἔστιν οὔτ’ ἐνδέχεται γενέσθαι σῶμα. Φανερὸν ἄρα ὅτι οὔτε τόπος οὔτε κενὸν οὐ.

  [17] τα θερμότητα σῶμα. Φανερὸν ἄρα ὅτι οὔτε τόπος οὔτε κενὸν οὐ.

  [18] τε χρόνος ἔστιν ἐξω. Διότι ὅτι ἐν τόπῳ τάκει πέφυκεν, οὔτε

  [19] χρόνος χρόνοι μετείχαν, οὔτε ἔστιν οὐδενὸς οὐδεμία μετα-

  [20] βολὴ τῶν ύπερ τῆς ἐξωτικῆς τεταγμένων φοράν, ἀλλ` ἀνάλ-

  [21] λοίστα καὶ ἀπαθῆ τὴν ἀρίστην ἔχοντα ζωήν καὶ τὴν πάμ-

  [22] κατάφην διατελεῖ τὸν ἅπαντα ζητών. (Καὶ γὰρ τοῦτο τὸν εἰσχο-

  [23] θεῖος ἐφθέγχθη καὶ παρὰ τῶν ἀρχαῖων. Τὸ γὰρ τέλος τὸ περ-


  [25] αἰῶν ἐκάστου οὐκ ἔστιν ἐξω. Κατὰ τόν αὐτὸν δὲ τό πάντα καὶ τοῦ πα-

  [26] ντός ὑπέρ τῆς χρόνου τοῦ πάντας αὐτὸς καὶ τὸ τῆς ἐξω.

  [27] ρίψαν περίεργον τόλμων αἰῶν σώμα. Άπαυστον δὲ καὶ εἰς ἐντό-

  [28] μίαν εἰκῆ, τοὺς ἀθανάτους καὶ θείους. Οὕνεκα καὶ τοῖς ἀλλοῖς

  [29] ἔξωρτηκα, τοὺς μὲν ἀκριβεστέρος τοὺς δ` ἀμαρτώ, τὸ εἶναι


  Καὶ γὰρ, ναθάνερ ἐν τοῖς ἄγγελοις φιλοσοφία-

  [31] μασσι περὶ τὰ θεία, πολλάκις προφαίνεται τοῖς λόγοις ὅτι

  [32] τὸ θεῖον ἀκρότατον τοὺς ἀναγκαίοις εἰσίν οὐκ τὸ πρῶτον καὶ

  [33] ἀκρότατον· δ` ὅτι ἔχον καὶ θεῖους εἰρημένους. Οὕτω γὰρ ἀλ-

  [34] να ἔρχεται ἐκεῖνον ἐν θείους εἰσίν· ὅτι ἔχοι μιαν εἰκής· ἀθανάτους καὶ θείους. Οὕνεκα καὶ τοῖς ἀλλοῖς

  [35] μιαν εἰκῆ, τοὺς μὲν ἀκριβεστέρος τοὺς δ` ἀμαρτώ, τὸ εἶναι

  [36] τά καὶ ζήν.

  "In its discussions concerning the divine, popular philosophy (ἐν τοῖς ἄγγελοις φιλοσο-

  φίασι) often propounds the view that whatever is divine, whatever is primary and supreme, is necessarily unchangeable (τὸ θεῖον ἀκρότατον τοὺς ἀναγκαίοις εἰσίν οὐκ τὸ πρῶτον καὶ ἀκρότατον). This fact confirms what we have said. For there is nothing else stronger than it to move it – since that would mean more divine – and it has no defect and lacks none of its proper excellence" (*De Caelo* 279 a 30-35 trans. J.L. Stocks).
<table>
<thead>
<tr>
<th>Ibn al-Bīrūq</th>
<th>Ibn al-Tayyib</th>
</tr>
</thead>
<tbody>
<tr>
<td>وقد بَيَّنَا أَنَّهُ لَا يَمْكُونُ أَنْ يَكُونَ جَرْمٌ مِنَ السَّمَاءِ جَسْمٌ إِلَّا مَّلْأَيْنَى وَلَا يَمْكُنُ أَنْ يَكُونَ جَرْمٌ مِنَ السَّمَاءِ جَسْمٌ إِلَّا مَّلْأَيْنَى وَلَا يَمْكُنُ أَنْ يَكُونَ جَرْمٌ مِنَ السَّمَاءِ جَسْمٌ إِلَّا مَّلْأَيْنَى</td>
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<td>279 a 16</td>
<td>279 a 16</td>
</tr>
<tr>
<td>فإذا كان هذا على هذا، في عينه ظاهر أنَّهُ لَا يَمْكُونُ أَنْ يَكُونَ جَرْمٌ مِنَ السَّمَاءِ مَكَانٌ إِلَّا مَّلْأَيْنَى وَلَا يَمْكُنُ أَنْ يَكُونَ جَرْمٌ مِنَ السَّمَاءِ مَكَانٌ إِلَّا مَّلْأَيْنَى وَلَا يَمْكُنُ أَنْ يَكُونَ جَرْمٌ مِنَ السَّمَاءِ مَكَانٌ إِلَّا مَّلْأَيْنَى</td>
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<td>279 a 17</td>
<td>279 a 17</td>
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<tr>
<td>وللذِّلِكّ أنَّهُم قَالُوا إنَّ الْزَّمَانَ ابْتِغَى حَيَّةً كُلْ وَاحِدٍ مِنَ الْإِشْبَاءِ حُيْثَ لا يَمْكُونُ أَنْ يَكُونَ جَرْمٌ مِنَ السَّمَاءِ مَكَانٌ إِلَّا مَّلْأَيْنَى وَلَا يَمْكُنُ أَنْ يَكُونَ جَرْمٌ مِنَ السَّمَاءِ مَكَانٌ إِلَّا مَّلْأَيْنَى وَلَا يَمْكُنُ أَنْ يَكُونَ جَرْمٌ مِنَ السَّمَاءِ مَكَانٌ إِلَّا مَّلْأَيْنَى</td>
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<td>279 a 18</td>
<td>279 a 18</td>
</tr>
<tr>
<td>فَقَدْ أَصَابُوا أَنَّ الْأَوْلِيَاءَ فِي مَتَلَخِصَ اسْمِ اللَّدْهِ وَقَالُوا فِيهِ قَوْلًا شَافِئًا</td>
<td>فَقَدْ أَصَابُوا أَنَّ الْأَوْلِيَاءَ فِي مَتَلَخِصَ اسْمِ اللَّدْهِ وَقَالُوا فِيهِ قَوْلًا شَافِئًا</td>
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<td>279 a 20</td>
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<td>279 a 21</td>
<td>279 a 21</td>
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<tr>
<td>فَوَلَّى ذَلِكَ نَقُولُ أَنَّ اَلْفَلُوكَ هُوَ الْمَحِيطُ بِالْزَّمَانِ كُلَّهَا اَلْذِّي هُوَ الْدَّهْرُ الْإِبْدَاءُ ﻓِيهِ ﻛُلُّ وَاحِدٍ مِّنَ اَلْإِشْبَاءِ حُيْثَ لا يَمْكُونُ أَنْ يَكُونَ جَرْمٌ مِّنَ السَّمَاءِ مَكَانٌ إِلَّا مَّلْأَيْنَى وَلَا يَمْكُنُ أَنْ يَكُونَ جَرْمٌ مِّنَ السَّمَاءِ مَكَانٌ إِلَّا مَّلْأَيْنَى وَلَا يَمْكُنُ أَنْ يَكُونَ جَرْمٌ مِّنَ السَّمَاءِ مَكَانٌ إِلَّا مَّلْأَيْنَى</td>
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<td>279 a 27</td>
<td>279 a 27</td>
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<tr>
<td>Ibn al-Bīṭrīq</td>
<td>Ibn al-Ṭayyib</td>
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<tr>
<td>وقد ذكرنا في كتبنا في الفلسفة،</td>
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<td>فقلنا إنه قد ينبغي للأشياء الروحانية</td>
</tr>
<tr>
<td>إلا أنها علة كل علة من علائها،</td>
<td>إلا أنها علة كل علة من علائها،</td>
</tr>
<tr>
<td>وليس من وراءها علة أخرى.</td>
<td>وليس من وراءها علة أخرى.</td>
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<tr>
<td>وهو على هذه الصفة التي وصفت</td>
<td>وهو على الصفة التي ذكرت</td>
</tr>
<tr>
<td>لا يتغير ولا يستحيل،</td>
<td>لا يتغير ولا يستحيل،</td>
</tr>
<tr>
<td>تمام كاملا دائم إلى الأبد،</td>
<td>تمام كاملا دائم على الأبد،</td>
</tr>
</tbody>
</table>
| وذلك أنه ليس فوهة علة أخرى معروفة حتى تخزه. | فان وجدت علة أخرى فهي أيضاً ثابتة قابحة دائمة ليس من خلفها أفضل منها. 
ونقول أيضاً إنه لا يقبل شيئاً من الآفات، عني ذلك الشيء الروحاني، وحركته دائمة لا انقطاع لها |
| فيلوجب ما كانت له هذه الحركة، لأن الأشياء كلهما تسكن حركتها إذا تنتهي إلى مواضعها، 
أما هذا الجرم الفائق الشريف فلا تسكن حركته البيئة، لأن موضع هذا الجسم المستدير، 
وإحد أعني أن وضع ابتداء حركته هو موضع آخر حركته، فذلك صار دائم الحركة لا يسكن البيئة. | لأن المبدأ الذي منه يأخذ في الحركة عند هذه القاعدة، ولذلك صارت حركته دائمة لا يسكن لها. |
Commentary

- 279 a 16 δέδειξται ὅτι ...
  - Ar⁸ wa-qad bayyannā ānifān wa-qulnā innahū ...
  - Ar⁷ wa-qad bayyannā fi-mā taqaddama annahū ...

In both versions, most probably on the basis of the Syriac, the Greek particles underlining the coherence and evidence of the argument are elaborated in the style of the late Greek commentary-lecture (v. infra, § 4.6.2, for further examples). Against version B, heavily loaded with hendiadys, amplification and paraphrasing, version T generally has less elaborate phrasing.

- 279 a 18 φανερὸν ἄρα ...
  - ArB fa-qadi stabāna iḏan wa-ṣaḥḥa annahū ...
  - ArT fa-in kāna hāḏā ʿalā hāḏā, fa-li-ḏālika šāra ...
  - ArB's phrase is one of most frequently used in this version for rendering Greek particles as δή, ἄρα, underlining evidence. While Ar⁷ has similar phrasing, it divides the argument between a recap and a conclusion.

- 279 a 20 τῶν ὑπὲρ τὴν ἐξωτάτω τεταγμένω φοράν
  - ArB šayʾun min ḫāriǧi āḫari l-sulūki
  - ArT al-ǧismāni l-muḥīṭu
  - ArB's terminology is not yet consolidated, and inconsistent in the rendering of terms not recognized as such. While Ar⁷ does not translate the Greek expression, but replaces it by a technical term in the sense of τὸ περιέχον σῶμα (passing over τεταγμένη as an auxiliary), missing the superlative ἐξωτάτω (not available in Syriac).

Cf. Themistius, In De Caelo <lat.>, p. 55.24-25 Landauer: Haec autem omnia illi corpori necessarie contingunt, quod in circulum fertur [necessarie: necessario Landauer, item editio princeps Venetiis 1574, f. 15v47-48, to be emended from the Hebrew: yehayyeš] (E. Coda); ibid. pp. 55.39-56.2 ait deinde [sc. Alexander] Si enim primam causam intellecret, verbis τὴν ἐξωτάτω φοράν motum sphaerae superioris intendent [re-translation by Landauer of Simplicius, In De Caelo, pp. 287.30-288.1 Heiberg: ὑπὲρ δὲ τὴν ἐξωτάτω φοράν εἰ μὲν λέγοι, φησί (ὁ Αλέξανδρος), περὶ τοῦ πρώτου αἰτίου; ed. Venet., f. 16r4-5: Ait deinde: si enim primum mobile intellecret, omnino extremum corpus superius intelliget, quod in circulum fertur; <hebr.>, ed./trans. Coda: “Then he (Alex.) says that (Aristotle) intends the First Cause, hence he understands this when he speaks of an ultimate motion moved by its driving cause in a circle”.

- 279 a 21 (τὴν ἀρίστην ἔχοντα ζωήν καὶ τὴν αὐταρκεστάτην
  - ArB tābit lā yatağayyar
  - Ar⁷ lā yatağayyar wa-lā yaqbal al-infiʿāl αὐτάρκης, a specifically Greek notion, found the translators (the Arabic being based on the Syriac) at a loss, content with taking up tābit from the previous clause (tābit lā yatağayyar / lā yatağayyar wa-lā yaqbal al-infiʿāl “unalterable and impassive”).

- 279 a 22-27 αἰών
  - Ar⁷ a22 al-abad; a25, a27 al-dahr; a22 τῶτο τοῦνομα ism al-abad
  - Ar⁷ dahr, a25 al-dahr al-ādāhī; a22 τῶτο τοῦνομα ism al-dahr
  - In both versions αἰών is recognized as a term, as shown in the explication of 279 a 22 τῶτο τοῦνομα: Ar⁷ ism al-abad, Ar⁷ ism al-dahr. Only Ibn al-Ṭayyib is consistent in rendering αἰών as
dahr, and only ArT lets transpire, in a25 ζιῶν ἐκάστου: al-dahr al-abādī the speculative connotation and the notion of transcendence. Ibn al-Bīrūnī at first (a22-23) introduces abād in place of dahr, but in a25/27 has dahr; 279 a25 li-annahū dāʾīm abad might be a plausible, if somewhat tautological explication of abād unless Ar had replaced the term abād, introduced in the first instance, by dahr wa-hulūd. So the announcement of an “exposition of the name of abād” (talḥis ism al-abād) opens out, by inconsistent usage, onto a different concept: dahr, the old Arabic concept of Time as blind fate, and then (a25) – completing the confusion – this is evolved into a hendiadys: dahr wa-hulūd. In a close rendering of Σ, ArB at first defines abād as an individual property: huwa dahr ḏālika l-šayʾ wa-hulūduhū (ζιῶν ἐκάστου a25), and then, in a loose rendition using a false analogy, a27: dahr al-samāʾ. The philosophical significance is not conveyed, but the concepts are blurred.

Against ArB, ArT is strictly literal, giving the correspondences θεῖος: ilāhī and ἀθάνατος: ḡayr māʾit, but fails equally in the crucial point. Neither of the two versions succeeds in conveying the connection between word and concept, and to render the Aristotelian ‘etymology’ of ζιῶν. Strictly speaking, this would be possible only by referring to the linguistic elements of the Greek (similarly, the translation of I 3, 270 b 22-24 αἰθήρ was bound to fall short of the Greek explanation αἰθέρα προσωνόμασαν τὸν ἀνωτάτω τόπον, ἀπὸ τοῦ θείου ἀεὶ τὸν ἀΐδιον χρόνον θέμενον τὴν ἐπωνυμίαν χυτῆ, Not the coinage of an adequate word for the concept is being praised, but the interpretation and application of the concept. Aristotle’s ‘etymology’ (ištiqāq) loses its analytical character (ζιῶν < ζεῖ ζῆν), becoming a circumstantial explanation making no real sense: iḏ kāna dāʾīm abadan “since it is perpetual and eternal”.

The sentence baffled the translators; τὸ εἶναι τε καὶ ζῆν is missing altogether in ArB. While ArT seems to have made a better sense of what transpired from the Greek wording: “This (the ζιῶν) is closer to some things, and farther from some things”, ArB changes the ontological connection between the ζιῶν and the existent beings (cf. Simpl., In De Caelo, p. 288.17-20 Heiberg) into a logical or cognitive one, bayān wāḍiḥ – bayān yasīr. Both versions will have relied on glosses, translated instead of the obscure phrase they were meant to explain.

Cf. Them., In De Caelo <lat.>, p. 56.31 Landauer: atque ab illius esse ceterarum etiam rerum esse pendet, harum quidem evidentiis, harum vero obscurius, secundum quod illi propinquiores vel remotiores existunt [ab–pendet: emend. Landauer]; Alatino’s translation as in the editio princeps, t.16r28-30: Ex quo etiam ceteris rebus, quae in generatione consistunt, communicata sunt (in alisis evidentiis, in alisis obscurius) status et vitae; secundum quod illi propinquiores vel remotiores existunt; Zeraḥya’s Hebrew version, transl. from E. Coda’s critical ed. [cf. p. 37.26-27 Landauer]: “And dependent from this are the other things, in respect to some less, in respect to others more (visibly) [cf. ArB], according to whether they are closer to or farther from us [cf. ArT]”.

ArX wa-qad ḏakarnā fī kutubinā fī l-falsafa al-ḫāriǧa aʾnī llatī waḍaʾnā li-l-ʿāmma (“We have explained in our books on the exoteric philosophy, i.e. those we wrote for the general public”).
The following passage, according to modern scholarship, is a reference to popular philosophy, but was understood by the Greek commentators and also by the Arabic translator to refer to Aristotle’s exoteric writings. Even today, this latter interpretation has followers.\(^3\)

Cf. Simpl., In De Cael., pp. 288.31-289.1 Heiberg: ἐγκύκλια δὲ καλεῖ φιλοσοφήματα τὰ κατὰ τάξιν ἐξ ἀρχῆς τοῖς πολλοῖς προτιθέμενα, ἀπέρ καὶ ἐξωτερικά καλείν εἰώθαμεν.

- 279 a 31-33 πολλάκις προφανεῖται τοῖς λόγοις ότι τὸ θείον ἀμετάβλητον ἀναγκαίον εἶναι πάν τῷ πρῶτον καὶ ἀκρότατον.

While the concept of κλών, notwithstanding a fairly intelligible rendering of 279 a 18-30, remained foreign to the translators, the introduction of τὸ θείον (‘the divine’), in Arabic al-rūḥānī (‘the spiritual entity’), prompts an enlarged paraphrase of the final section of Chapter 9, on the attributes of the transcendent Beyond:

<table>
<thead>
<tr>
<th>[\text{Ar}^\text{B}]</th>
<th>We have explained in our books on the exoteric (Ar. ‘external’) philosophy, i. e. those which we ([\dagger]) wrote for the general public (al-ʿāmma), and have said,</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 καὶ γὰρ, καθάπερ ἐν τοῖς ἐγκυκλίοις φιλοσοφήματι περὶ τὰ θεῖα, πολλάκις προφανεῖται τοῖς λόγοις</td>
<td></td>
</tr>
<tr>
<td>[\text{Ar}^\text{B}]</td>
<td>by necessity this spiritual thing (ｂāḏāʾ ʿl-say al-rūḥānī) must be unchanging and indestructible.</td>
</tr>
<tr>
<td>[\text{Ar}^\text{T}]</td>
<td>because it is the cause of every cause of their causes (ʿilalihā),</td>
</tr>
<tr>
<td>[\text{Ar}^\text{I}]</td>
<td>because it is the cause of all that comes after it in its world (min ʿālamihī),</td>
</tr>
<tr>
<td>[\text{Ar}^\text{T}]</td>
<td>there being no other cause beyond it.</td>
</tr>
<tr>
<td>[\text{Ar}^\text{I}]</td>
<td>it is of this description that has been stated, unchanging and unalterable, perfect, complete and perpetual in eternity,</td>
</tr>
<tr>
<td>[\text{Ar}^\text{I}]</td>
<td>because above it there is no other cause causata(^4) which should move it;</td>
</tr>
<tr>
<td>[\text{Ar}^\text{I}]</td>
<td>and above it there is no other cause the causatum of which it (sc. this transcendent being) should be;</td>
</tr>
<tr>
<td>[\text{Ar}^\text{B}]</td>
<td>and necessarily this movement belongs to it, …</td>
</tr>
<tr>
<td>[\text{Ar}^\text{T}]</td>
<td>and if there were another cause, this in its turn would be steadfast, enduring and eternal, and nothing more excellent would be beyond it.</td>
</tr>
<tr>
<td>[\text{Ar}^\text{B}]</td>
<td>and its movement is eternal and unceasing,</td>
</tr>
<tr>
<td>[\text{Ar}^\text{I}]</td>
<td>and by rights this movement belongs to it …</td>
</tr>
</tbody>
</table>


\(^{44}\) 'illatun uḫrā ma ʿlūlatun: leg. 'illatun uḫrā <huwa> maʿlūluhā, cf. \[\text{Ar}^\text{I}\]?
32 τὸ ἱερόν al-šayʾ al-rūḥānī “this spiritual thing”

It is used only here in Ibn al-Ṭayyib’s translation, but more frequently in Ibn al-Bīrūq’s version, as a term translating the Greek ἱερός. This usage reflects a Neoplatonic influence (ῥύθ: πνεῦμα) and is found most prominently in the Arabic Plotinus source, Kitāb Aristūṭālīs al-musammā Uṭūlūğiyya ay al-rubūbiyya (Theologia Aristotelis). This was translated by Ibn al-Bīrūq’s contemporary Ibn Nāʿima al-Ḥimṣī, working like him in the circle of al-Kindī, and is closely related in terminology and style to his translations. Cf. G. Endress, “Platonizing Aristotle: the Concept of ‘spiritual’ (rūḥānī) as a Keyword of the Neoplatonic Strand in Early Arabic Aristotelianism” (quoted above, p. 222, n. 23), pp. 265-79.

τὸ πρῶτον καὶ ἀκρότατον

- Ar⁸ because it is the cause of every cause of †their† causes (ʿilalihā),
- Ar⁹ because it is the cause of all that comes after it in its world (min ʿalamihī)

The text in Ar⁸ is corrupted. While the translation “the cause of all causes” may be a simple emendation ad sensum at first look, it is not justified by the syntax of the Arabic phrase. But then, if Ar⁹ is a correct rendering of the common Syriac Vorlage, Ar⁸ could be easily explained as a misreading of the latter: عالله > عالله.

In both Arabic translations, based on the Syriac, the transcendent Beyond becomes the First Cause. While the passage does not contain explicit evidence of an Unmoved Mover, some early commentators understood it so, and the question has continued to be discussed in modern scholarship. It is true that Aristotle ascribes life to the †things out there†, as elsewhere to the pure actuality of the First Mover. But the cosmology of the De Caelo in general does not presuppose the theory of the Prime Mover, and would contradict it in some respects. It seems more probable that the plural τἀκεῖ denotes separately existing, supra-mundane principles which like Plato’s realm of subsistent ideas are outside the heavens, while the heavens constitute space, movement and time, and – again as in Plato’s cosmology – are ensouled.⁴⁵

4.6. The Language of the Translations: Terminology and Style in Comparison

Both the oldest Arabic translation of De Caelo, made by Ibn al-Bīrūq in the age of al-Maʿmūn, and Ibn al-Ṭayyib’s new translation go back to the same Syriac version. The comparative analysis of a specimen passage, given above (pp. 240-6), provides ample evidence. Ibn al-Ṭayyib had no Greek, so he was unable to emend the text independently; Syriac elements – most striking is his use of a Syriac loanword (ܟܟܪܐ kakkerā) for τάλαντον – show that he used the Syriac directly without an intermediary. In view of many differences against Ibn al-Bīrūq’s and other known translations, we may exclude that Ibn al-Ṭayyib revised an earlier version, although this was a frequent practice.

⁴⁵ P. Moraux [ed.], Aristote, Du ciel, Les Belles Lettres, Paris (CUF), p. xliv, with references (note 5); but according to Alexander (as quoted by Simpl., In De Caelo, p. 287.19-21 Heiberg), the whole passage would refer to the sphere of the fixed stars exclusively.
4.6.1. Terminology: Borrowing, Adaptation, and Transposition

In terminology, we observe several methods used for the transposition and for the creation of terms. In translation as well as in the subsequent process of integration, the language of Arabic philosophy was built between the translators of the Kindī circle and their readers, and accomplished by the founders of Islamic philosophy in its proper sense from al-Kindī to al-Fārābī and Ibn Sinā.

4.6.1.1. Functional

The primitive, but (even in the first period of Arabic translations) by no means predominant procedure of functional transposition – a foreign or an indigenous lexeme or syntagm is allotted to represent the function of the technical term, by convention – is that of the adoption of loanwords. These are words adopted or borrowed, with little modification, from the source language. Loan-translations, on the other side, are expressions adopted from the source through translating its semantic elements more or less literally (‘calque’). Both serve as functional shells for the concepts defined by the respective disciplines and systems.

a) Loanwords: Transliterated Greek and Syriac Words and Other Loanwords

Terms adopted from Greek Loanwords current in Syriac

Several Greek loanwords were adopted by the translators from Syriac, but not necessarily from the immediate Syriac sources used. We should note that the use of such words, naturalized in Arabic even before being used in translation, does not necessarily point to a Syriac Vorlage. Only a minority however were naturalized to become part of the Arabic vocabulary in the long run (such as ḥayūlā and usṭuquss). Generally, many of the transliterated Greek and Syro-Greek loanwords were replaced at a later stage with regular Arabic terms, introduced by the second generation of Arab translators and adopted by the Arab readers of their work (e.g., the translations of Aristotle’s Organon and Physics made by Ishāq ibn Hunayn and his circle in the late 9th/early 10th century, and by Abū Bīṣr Mattā and Yahyā ibn ’Adī in the 10th century).
Some Greek loan-words had been current in Syriac, whence they were adopted in Arabic:

- γένος: ḣins < Syr. gensā [not occurring in our De Caelo texts].
- στοιχεῖον 280 a 16 etc.: wṣtuquss46 (< Syr. estāksā) ArB / ArT
- τάξις: taqs < Syr. taḵsā, used in conjunction with Arabic equivalents, v. infra, p. 250.

 diffé 286 a 25: ḥayūlā ArB / ArT. This is the traditional vocalization of the Arabic transliteration of Syriac ܠܐ ܗܝܘ, where yw represents Greek y. In both versions.

Both ḥayūlā and wṣtuquss are concuring with Arabic ṣwṣr:

- 279 a 8 ἐξ ἁπάσης ἄρ’ ἐστὶ τῆς οἰκείας ὕλης ὁ πᾶς κόσμος· ὕλη γὰρ ἦν αὐτῷ τὸ φυσικὸν σῶμα καὶ αἰσθητὸν
  - ArB wa-dālika anna l-ʾālama kullahū murakkabun min ‘uṣurīḥi kullīhi l-mulāʾimi lahū l-lāʾiqi bihī, wa-qad qulnā ānifan inna ‘uṣura l-ʾālami huwa l-ǧīrmu l-ṭabīʿiyyu l-mahsūs.

- 286 a 25 ἡ γὰρ αὐτῆ ὕλη τῶν ἐναντίων
  - ArB li-anna hayūlā l-aḍḍādi wāḥidatun
  - ArT min qibali anna l-hayūlā l-aḍḍādi wāḥidatum bi-ʿaynihā.

The use of ṣwṣr for ḥyūl, beside the loanword ḥayūlā, is only found in the early period of the Graeco-Arabic translations, notably in the circle of al-Kindī (v. references for Usṭāṯ in Die arabischen Übersetzungen von Aristoteles’ Schrift De Caelo [above, n. 2], p. 123). In later translations, ṣwṣr occurs as an equivalent of στοιχεῖον (instead of the loanword wṣtuquss), when the term denotes one of the four elements.

Syriac:

- τάλαντον: kakra. Most striking as evidence for Ibn al-Ṭayyib’s independent use of the Syriac Vorlage is a Syriac loanword, kakra, from the Syriac kakkerā, for Greek τάλαντον, De Caelo I 11, 281 a 9, a hapax legomenon not attested in any other Arabic text.

Persian

While some Persian loanwords, quite common in the early translations, survived into later usage, Ibn al-Bīrīq’s translation has one rare term deserving special attention: κύβος 305 b 30 etc.: narda ArB. Also found in the Arabic version of Arist., Metaph. Δ 17, 1002 a 22 made by another member of the ‘Kindī circle’, Usṭāṯ (p. 278.5 Bouyges). Otherwise, the Persian term occurs in Arabic only for the dice used in the game of nard (‘backgammon’). For the collective (la b) al-nard, narda is the nomen unitatis (‘single dice’).

baḥt (‘luck, fortune’) is used in conjunction with Arabic terms, but mostly replaced in the later version: ὡς ἔτυχε 301 a 11 bi-l-baḥt ArB, 289 b 26 bi-manṣilat al-baḥt wa-l-muṣādaša ArB; 289 b 26 bi-l-baḥt wa-l-ittifāq ArT, 290 a 31 ‘abaṭan bi-l-ittifāq ArT.

Some foreign words were already part of the Arabic vocabulary before being used by the translators as technical terms: ḡawbar, commonly ued for the Greek ὄσια (‘substance’) – not occurring in our De Caelo texts.

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In not a few cases, the use of transliterated Greek terms shows uncertainty of the early translators regarding the precise meaning and the adequate rendering of technical terms of logic and physical/metaphysical principles:

- \( \text{ἀπόφασις} \): **abūfāsīs**, rendered by Ibn al-Ṭayyib as **salb** and **naqīḍ**, **tanāquḍ**, respectively.

De Cael., 1 12, 282 a 4-10: 'Επεί δ’ ἀπόφασις τοῦ μὲν ἀεὶ δυνάμενον εἶναι τὸ μὴ ἀεὶ δυνάμενον εἶναι, τὸ δ’ ἀεὶ δυνατὸν μὴ εἶναι ἐναντίον, οὗ ἀπόφασις τὸ μὴ ἀεὶ δυνάμενον μὴ εἶναι, ἀνάγκη τὰς ἀπόφασες ἀμφότερον τῷ αὐτῷ ὑπάρχειν, καὶ εἶπε, μέσον τοῦ ἀεὶ ὄντος καὶ τοῦ μὴ ἄνωτερο τὸ δυνάμενον εἶναι καὶ μὴ εἶναι. ἢ γὰρ ἐκατέρου ἀπόφασισι ποτὲ ὑπάρξει, εἰ μὴ ἀεὶ.

Ar\(^{b}\) wa-naqīlu ʿayḍan inna abūfāsīs al-šayʿi allaḏi lahū quwwwatun an yakūna dāʿiman aysa huwa allaḏi laysat lahū quwwwatun an yakūna dāʿiman aysa, fa-ammā ḍidduhū fa-huwa llaḏī lahū quwwwatun an yakūna dāʿiman laysa; fa-ammā abūfāsīs ḍidduhū fa-huwa llaḏī laysat lahū quwwwatun an yakūna dāʿiman laysa. fa-naqīlu innahū qad yakūnu bayna ḍidduhīni l-abūfāsīs ṣay un yatabawṣatuhumā wa-huwa llaḏi lahū quwwwatun an yakūna aysa wa-an yakūna laysa fi zamānin wa zamānin, wa-ḍalika anna abūfāsīs kulli wāḥidin minhumā yakūnu laysa fi zamānin mā li anna kilayhmā laysa dāʿiman.

Ar\(^{I}\) fa-inna naqīda qawlinā inna al-šayʿa lahū quwwwatun ṣalb an yūǧada dāʿiman huwa qawlunā inna laysa fī l-šayʿi quwwwatun ṣalb an yūǧada dāʿiman, wa-ḍidduḥu huwa an yakūna fī l-šayʿi quwwwatun ṣalb an yūǧada dāʿiman; wa-naqīḍu ḍidduhū huwa fī l-šayʿi quwwwatun ṣalb an yūǧada dāʿiman. wa-ḥiḏāʾa hāḏā l-taqābuli yakūnu baynahumā fī zamānin, wa-huwa l-šayʿu llaḍī fī hinquwwatun ṣalb an yūǧada wa-an lā yūǧada fī zamānin wa zamānin, wa-salbu kulli wāḥidin minhumā yakūnu fī zamānin mā min qibali annahumā ṣalbā dāʿiman.

In Arabic logical writings, both in the translations of the *Organon* (as in Cat. 13 b 2-3) and in original works, *ḍidd* and the verbal noun *taḍādd* are used for the contrary opposite (ἐναντίον) (v. Cat. ed. Georr, *Lex.* s.v.; A.M. Goichon, *Lexique de la langue philosophique d’Ibn Sīnā (Avicenne). Vocabulaires comparés d’Aristote et d’Ibn Sīnā*, Desclée de Brouwer, Paris 1938, no. 381; as also in the translations of De Caelo, wherever the strict sense of ἐναντίον is concerned). The contradictory opposite of statements (ἀπόφασις, *De Int.* 17 a 25-35) is normally rendered by Arabic *salb* ‘negation’ (v. *De Int.* ed. Pollak, *Glossary* s.v.; Goichon, *Lexique*, nos. 715-16). Ibn al-Biṭrīq, not yet disposing of an established terminology, preferred to translatere ἀπόφασις as did, most probably, his Syriac source. It is striking that Ibn al-Ṭayyib, who wrote full literal commentaries on Cat. and De Int., did not use the clear-cut terminology established in all the current translations, using *salb* in one case, but elsewhere *naqīḍ* and *tanāquḍ*, both corresponding rather to Greek ἀντίφασις (*De Int.* 17 a 33, cf. *De Int.* ed. Pollak, *Glossary* s.v.).

In the Q family of manuscripts of Ar\(^{b}\), *abūfāsīs* was replaced by *naqīḍ* in some instances. The inconsistent terminology was noticed by a reader of Ar\(^{b}\), commenting in a marginal note on 282 a 14 (mss. Haydarābād 441 and Isfahān 301) that “the translation of the ṣayb Abū l-Faraḡ, secretary of the Katholikos, has replaced this (abūfāsīs) in [the reading of] the exemplar (muntasah), by *naqīḍ* (opposite), and this is correct, since indeed he means the negation” (see full quotation above, p. 234, § 4.2.4 b).
Ibn al-Bėtrīq, in default of an adequate Arabic terminology, transliterated the Greek word as well in the case of κατάφασις:

- κατάφασις ‘affirmation’

<table>
<thead>
<tr>
<th>κατάφασις</th>
<th>Ar(^{b})</th>
<th>Ar(^{T})</th>
</tr>
</thead>
<tbody>
<tr>
<td>286 a 26</td>
<td>qaṭāfasī</td>
<td>malaka</td>
</tr>
</tbody>
</table>

ἡ γὰρ αὐτὴ ὕλη τῶν ἐναντίων, καὶ τῆς στερῆσις πρῶτον ἡ κατάφασις De Caelo II 3, 286 a 26

Ar\(^{b}\)  li-an-na ḥayūlā l-addādi waḥidatun, wa-inna l-qaṭāfasī gabla l-ʿadami, p. 236.14 Badawi

Ar\(^{T}\)  min qibali anna l-hayūlā li-l-ʿadādi waḥidatun bi-ʿaynihā, wa-inna l-malakata tataqaddamu l-ʿadama, De Caelo 122 b 5

- The use of malaka for κατάφασις in Ar\(^{T}\) (normally translated by īǧāb ‘affirmation’ vs. salb ‘negation, privation’) is justified by the context, where κατάφασις vs. στέρησις may be regarded as synonymous with ἕξις.

Some of these transliterated terms were coupled with an Arabic equivalent for the sake of clarity, while the Arabic word in itself was not deemed sufficiently specific as a technical term:

κλεψύδρα De Caelo II 13, 294 b 21 = al-āniya allatī tudʿāqlbsdry / qlsydry wa-biya l-naššāfa ‘the vessel called qalafsudrī, i.e. the siphon’ Ar\(^{b}\). (The passage is not extant in Ibn al-Ṭayyib’s translation).

τάξις 280 a 17: šarh, 286 b 34, 293 a 14, 301 a 2. 5, elsewhere šarh wa-martaba, šarh wa-ṭaqs Ar\(^{b}\); against šayʾ manẓūm (‘an ordered thing’ Ar\(^{T}\) 280 a 17).

ἄτακτος 280 a 7: ἐχεῖ ἀνεξάρτητον κατάφασις, i.e. the siphon’ Ar\(^{b}\). (The passage is not extant in Ibn al-Ṭayyib’s translation).

The loanword ṭaqs (Greek τάξις, ‘order’) appears in syntagmas with Arabic šarḥ (‘dissection, orderly disposition’), and occasionally martaba (‘order’) in the same meaning is a characteristic feature of Ibn al-Bėtrīq’s terminology as well as of other translators of his group. It was generally replaced by Arabic nizām, as also in Ibn al-Ṭayyib’s version.

But many of the ad hoc transliterations of the early translations fell from use as soon as Arabic equivalents gained acceptance, except for terms figuring as titles of some parts of the Aristotelian encyclopaedia, or those naturalized completely in analogy to the paradigms of Arabic morphology: safṣaṭa for the Sophistica, and falsafa, Greek philosophia, in distinction from the more general Arabic ḥikma, originally ‘wise saying’, ‘wisdom.’

b) Loan-translations

Like loan-words, loan-translations function as shells for the concepts they are appointed to represent: from the root nataqa ‘speak’, translating the basic meaning of Greek λέγειν, are formed nāṭiq, for Greek λογικός ‘rational’, and manṭiq ‘logic’.

mabsūṭ, a calque on the Syriac part. pass. pešīt, for ἀπλοῦς, is a characteristic term of the translations of Ibn al-Bėtrīq and the Kindī circle in general, replaced by the standard basīt in Ibn al-Ṭayyib’s version:

ἀπλοῦς 279 a 4, 288 a 11, 288 a 34, 288 b3, 288 b 19: mabsūṭ Ar\(^{b}\), basīt Ar\(^{T}\).

illa signifying ‘cause’ is a loan from Syriac ṣelletā, against the ancient Arabic signification ‘defect, illness’. The word, through the reception of the early translations in philosophy and scientific writings, continued in use, but was mostly replaced by sabab in later translations and in general usage.
aysa, a neologism used in the opposition laysa vs. aysa: ὁὐκ (μη) ζῆναι vs. ζῆναι: only, may be regarded as a calque on Syriac layt vs. it. In Ibn al-Ṭayyib, as generally in all of the later translations, it is replaced by yūǧad vs. là yūǧad (examples below, p. 252).

c) Positing Functional Equivalence

Apart from verbal or structural loans, new terminological conventions – especially in the early period of reception – were modelled not on the accurate transfer of Greek lexical models, understood by virtue of their metaphorical content, but by the pregnant approximation ad sensum of Greek key concepts of the logical and scientific discourse:

κατάφασις ~ īǧāb,
ἀπόφασις ~ salb (examples above, p. 249f.).

Under the same agenda, negative composites are replaced by a positive contrarium:

ἀδύναμικα ~ duʿf,
ἀδύνατος ~ yahfā.
mostly in exaggerative conjunction with the negative expression:

ἀδύνατον ~ muḥāl ġayr mumkin,
ἀδήλος ~ yaḫfā,
beside ġayr tabīʾi, ḥāriḍ ān al-ṭabīʾa, bi-ḥilāf al-maǧrā l-ṭabīʾa.

4.6.1.2. Paradigmatical

From the earliest reception of scientific professional language, indigenous Arabic words were applied to technical concepts by analogy, extension or specification of the inherent metaphors, concrete images representing abstract universals.

ḡawhar (from the Persian, ‘jewel’) never had a serious competitor as a term for ‘substance’ (Greek οὐσία), even though the Iranian Ibn al-Muqaffaʿ used a different Arabic word in his early rendering of the Organon: āyn (‘eye’, ‘the thing itself’). An old Arabic word, sabab (‘rope’), was to become the standard term for ‘cause’ instead of īlla (not in Ibn al-Ṭayyib’s version, who like ArB used īlla under the influence of his Syriac Vorlage).

Beginning with the early group of translators around al-Kindī, we observe the triumph of abstraction by semantic derivation. In deriving abstract terms from such metaphors of the common language, abstraction is mainly achieved by two procedures:

(a) The formation of the verbal noun, maṣdar, is used to convey the universal as a process;
(b) Derived from the concreta by the formation of abstract nouns based on the relative adjective (-i > -iyya), the abstract is in its turn hypostatized (‘verdinglicht”).

On the one side, we find qiyaš ‘taking measure’ > ‘analogy’, taǧrid ‘stripping, peeling’ > ‘abstraction’, idāfa ‘putting next to one another’ > ‘relation’, tasawwur ‘picturing, imagining’ > ‘conception’, tasdiq ‘declaring as true’ > ‘judgment’.

On the other hand, a long repertory of neologisms appears in which abstract nouns are derived from pronouns and particles with the Arabic nisba suffix, as māhiyya ‘quiddity’ from mā ‘what?’, kayfiyya ‘quality’ from kayfa ‘how?’, imported into medieval Latin by the twelfth-century translators.
The concepts of being qua being, of ontological universals, and of the categories offered immense difficulties for which no uniform solutions were found. Our translators developed a whole system of terms to provide for the different usages of Greek εἶναι, Arabic having no copula to indicate the predicate of existence; anniyya for Greek τὸ εἶναι, τὸ τί ἦν εἶναι ‘to be, being, essence’, huwiyya for τὸ ὄν (‘being’, part. praes.), aysa vs. laysa for ‘being’ vs. ‘non-being’, and dāt for ‘essence’. In the case of huwiyya, an Arabic word was derived from a Syriac root ḥwy (‘to be, become’). Since this was a system of concurring words, none of which was well-defined, it was superseded by a system of derivatives of a single Arabic root: wuġūd (‘to be found’). Here, as in other cases, the competition between terms mirrored the competition between translators.

The copula of the Indo-European languages having no equivalent in Arabic (where the simple sentence ‘A is B’ is expressed as a nominal sentence), the translators used different words in order to express absolute ‘being’ and to differentiate ‘being’ from ‘not being’ on the one hand and from ‘coming into being’, ‘becoming’ on the other.

▶ Ar\(^{b}\) aysa, formed as a positive counterpart of laysa – another Syriac calque (Ar. laysa: Syr. layt = aysa: it, albeit not in strict etymological correspondence), signifies ‘being’ only in opposition with ‘non-being’ (laysa).

Whenever the opposition ‘being’ vs. ‘becoming’ requires concise expression, B employs the 2\(^{nd}\) form of the verb kāna: kuwwina ‘to be brought into being’, ‘to become’ = γίγνεσθαι, γενέσθαι, part. pass. mukawwān = γιγνόμενος, γενόμενος, γενητός, nomen verbi takwīn = γένεσις (in some instances, the derivations mutakawwān, takwīn of the intransitive 5\(^{th}\) form, easily confounded with the 2\(^{nd}\) form derivations, may be the original readings). This remains in use, as also in Ibn al-Ṭayyib’s version, for γενητός, ἀγένητος (mukawwān / ἀγών mukawwān).

▶ Ar\(^{t}\) wuġida, part. pass. mawqūd, nomen verbi wuġūd) signifies ‘being’:
- in the sense of the εἶναι ‘exist’;
- in opposition to ‘becoming’ (kāna);
- in opposition to ‘non-being.’ The latter could be translated in verbal and adjectival syntagms with lā yūḏaḏ, ġayr mawqūḏ, but for the substantive, τὸ μὴ εἶναι, a different concept would be used, ʿadam = στέρησις (similarly, ἐὰν μὴ ὄν 292 b 10 = dāʾim al-ʿadam).

### 4.6.1.3. Syntagmatical: Linguistic Adaption and Transposition

Simple, descriptive approximations of the processual or syntagmatical elements of the concepts conveyed by a given term sometimes yielded expressions not recognized as pregnant renderings of the underlying terminology and were discarded in the usage of demonstrative discourse, to be replaced by more adequate terms. But while the Arabic mathematicians had, from a fairly early stage of scientific writing, fully worked out sets of terms, e.g., for describing and deducing the axioms and deductions of geometry, the philosophers had not.

It is striking, for example, that the early translator of Aristotle’s De Caelo is unable to render the concept of ἀναλογία, using Arabic iqtirān (‘conjunction’) and the verb ašbaha (‘be similar’) instead, and that in some of the Neoplatonic texts the crucial concept of μέθεξις is rendered occasionally by a simple fi (‘in’), ‘A is in B’ meaning that ‘A participates in B’, in other instances by expressions with nayl (‘taking’), istifāda (‘making use of’). The degree of abstraction involved here was mastered by the translators only after the philosophers had paved the way.

For the sake of univocity, even the concreta of natural designations were given up in favour of a ‘scientific’, syntagmatic paraphrase, where the meaning of the term is specified through its position in an array of oppositional pairs or triads.
Thus, the early naʿt (‘description’) for Greek κατηγορία goes together with ḥāmil (‘bearer’) for the substrate, Greek υποκείμενον. The ‘scientific’ maqūla (‘predicate’), derived from the root q-w-l (‘to say’) as is the Greek κατηγορία from κατηγορέω, required a different set of terms where the υποκείμενον was in Arabic mawḍūʿ (‘posited [as a substrate]’).

Word Formation and Derivation. — Here, most of the compositional and derivational elements of the Greek could not be rendered without admitting, in the process of transposition, divergences in quantity (dilution, amplification) and quality (notably, the substitution of grammatical categories). Nominal composites are reproduced analytically.

Thus alpha privativum is rendered by ġayr c. gen.: ἀκίνητος ~ ġayr mutaḥarrik, ἀτεῖρος ~ ġayr mutanāhī, ἄπειρος ~ ġayr ḏī nihāya, ἐφ' ὧν λέγεται ~ ġayr ḏī nihāya al-mursala al-ūlā, τὸ ἀσώματον ~ ġayr ḏī nihāya, οὐδέν ~ ġayr mutanāhī, ġayr ḏī nihāya... Here the older translators, like Ibn al-Biṭrīq, prefer (like in the Syriac pattern) the negative particle lā c. acc. (general negation, nafy al-ǧins) and treat the syntagm as a determinate noun: ἄλογος ~ lā nuṭqa lahū, ἄπειρος ~ lā nihāyata lahū, ἰδίως ἀτεῖρα ~ lā nihāya al-mursala al-ūlā, τό ἰδίως ~ lā jirm, ὁδόν ~ lā ὁδόν (v. ArÜbCael [above, n. 2], pp. 59, 78).

The Greek adverb in -ως and other adverbial expressions are substituted by Ibn al-Biṭrīq and other translators of the Kindī circle by a prepositional expression bi-nawʿ c. gen.: ἁπλῶς ~ bi-nawʿ mabsūṭ, χρόνῳ ~ bi-nawʿ zamān, similarly ἀλλως ~ bi-qawl ḏāmi (cf. ArÜbCael [above, n. 2], pp. 67, 81, 114, 121). Later translators, including Ibn al-Ṭayyib, will use the adverbial accusative of an adjective.

Verbal adjectives formed with -τός a.o., especially those with alpha privative, are rendered by Ibn al-Biṭrīq and other early translators by function verbs (and their participles) construed with verbal nouns: μεριστός ~ yaqbal al-taǧziʾa, διαιρετός ~ qābil li-l-taḏsil, ἀπαθής ~ ἐφ' ὧν λέγεται, ἀναλλοίωτος ~ lā yadḵuluhu l-taṯayyur (cf. ArÜbCael, pp. 165-69). Here, the later translators including Ibn al-Ṭayyib are neglecting the distinction (not observed in later Greek usage already) between the part. praes. act. and other verbal adjectives, using uniformly the part. act. with intransitive verbs: ἀναλλοίωτος ~ kāʾin, ψάρτους ~ ἀτά (v. ArÜbCael, p. 49).

4.6.2. Expository Rhetoric: Didactic Phraseology And Demonstrative Discourse

In the field of stylistics and phraseology, we are encountering, in the translators’ usage, the exegetical amplification and rhetorical ornament that are familiar not only from the manuals of ancient rhetoric, but equally from the Peripatetic and Neoplatonic commentary tradition that conveyed, along with the texts, the school tradition of teaching and interpretation. A rich repertory of phrases used for introduction, transition, summing up, underlining the evidence of the result and the stringency of the argument is deployed – just as in the oral instruction of the lecture course – where the basic text has only modal, connective and inferential particles. This remarkably elaborate phraseology
of reasoning and of presenting evidence is characteristic of a whole group of early translations, like those commissioned by or made in the environment of the scientist and philosopher al-Kindī, such as Ibn al-Bīṭrīq’s version of Aristotle’s De Caelo and Ibn Nāʿima’s translation of the Neoplatonic sources current under the title of the Theology of Aristotle.47

But while this phraseology is common to the group of translators to which Ibn al-Bīṭrīq belonged, it is not used uniformly in all of the translations attributed to him. It is true, on the other hand, that in the case of De Caelo such a stylistic repertory, structuring and organizing the outline and sequence of arguments, an inventory of introductory, summarizing, transitional and connecting phrases, is found not only in the early translation of Ibn al-Bīṭrīq and the Kindī circle, but in the later translation of Abū l-Farağ ibn al-Ṭayyib as well. Since both versions of De Caelo are based upon the same Syriac text, it is not surprising to find a corresponding usage of such phrases, pointing generally to the common Vorlage, i.e., the Syriac version used by both translators. One can observe, however, that the phraseology of Ibn al-Ṭayyib is less elaborate, less fraught with emphatic hendiadys and cumbersome paraphrase.

The following are the main elements:

a) Opening of a theme, introducing a topic or further argument and leading over to the next topic (transitus):

ετι (δε) ..., ἀλλὰ (μην) ..., ὢν ... ~ wa- / fa-naqūlu ayḍan (Syriac tūb, tūb dēn) ‘further we say ...';

fa-naqūlu ayḍan inna ..., fa-nuridu an naḥṣa’an ...

- ετι δε 279 b 21
  - Ar8 wa-naqūlu ayḍan inna ...
  - ArT wa-ayḍan fa-inna ...

- λόγος δε καθόλου δε 282 a 14
  - Ar8 fa-nuridu l-āna an naqūla fi bādhihi l-āsya’ī bi-qawlin kulliyīn ...
  - ArT fal-naqul fi ḏālika qawlan kulliyīn ...

See examples in ArÜbCael (above, n. 2), pp. 66-8; ProclArab (above, n. 19), pp. 171-3.

b) Announcing the proof of a supposition, underlining the evidence of the present statement, and stressing the stringency of an argument:

ἐκ τῶνδε φανερόν ~ wa-burhānu ḏālika, wa-bayānu ḏālika wa-taṣḥīhū bi-mā anā ḏākiruhu l-āna; φανερόν ~ wa-hāḏā bayyinun ẓāhirun lā yuḥtāǧu ilā munāẓaratin fīhi.

See examples in ArÜbCael, pp. 63-5; ProclArab, pp. 174-6; 180-3.

c) Reverting to a topic treated previously after a digression (ἄφοδος):

ἀλλὰ (μην), νῦν, τοίνυν ... ~ fa-narɡi’u wa-naqūlu, fa- (fal-) narɡi’u ilā mā kunnā fīhi (bi-sabilīhi),

fa-naqūlu inna ...

See examples in ArÜbCael, pp. 68-9, ProclArab, pp. 178-80.

d) Elaborating a fictitious or anticipated objection:

εἰ δε ... λέγω δε ... ~ fa-in qāla qāilun ... qulnā muqībīna ... (276 b 32 – 277 a 4, cf. Simpl., In De Cael., p. 257.1-9 Heiberg ad locum: εἰ τις οὖν τοῦτο λέγοι, ὦτι ... εἰ τις οὖν τοῦτα λέγοι, φησί, ἐφητέον κυτῳ ...).

See examples in ArÜbCael, pp. 70-1, 179, ProclArab, pp. 183-4.

47 See the inventories and comparative tables given in my ArÜbCael, pp. 63-72; ProclArab, pp. 171-85.
e) Validating a conclusion from established premises and returning to the thesis so proven:

\[ \text{ārā, oūn, ōste} \sim \text{fa-in kāna bādā' alā bādā rağ'ā nā fa-qulnā inna ...; ŋrx} \sim \text{fa-in kāna bādā' alā āli fa-lā mahālata anna ... fa-in kāna ālika ka-dālika fa-kāna ...} \]

See examples in ArÜbCael, pp. 69-70, ProclArab, pp. 174-8.

f) Back reference:

δη, δέδεικταν \sim \text{ka-mā qulnā ānifan.} 

δέδεικτα 288 a 24

- Ar\textsuperscript{b} wa-qad bayyannā wa-awdāhnā
- Ar\textsuperscript{a} fa-śādin qad qulnā fi-mā salafa wa-awdāhnā anna ...

See examples in ArÜbCael, pp. 71-2, 179; ProclArab, p. 181.

g) Summing up, and stating the final result:

\[ \text{ϕανερὸν ārā, fa-qadi stabāna l-āna wa-sahha anna ..., fa-qadi stabāna l-āna wa-sahha anna ...,} \]

and concluding with a final ‘quod erat demonstrandum’:

\[ \text{wa-dālika mā aradnā an nubayyin.} \]

4.7. Ibn al-Ṭayyib’s Commentaries on Aristotle’s De Caelo

4.7.1. Ibn al-Ṭayyib as a Commentator: Analytical Structure. Lexis and Thēoría

The commentary work of Abu l-Farağ ibn al-Ṭayyib presents the most faithful continuation of the Alexandrian commentary tradition both in philosophy and in medicine.\textsuperscript{48} The ‘running commentary’ (literal commentary, commentaire continu), the common form of philosophical instruction in late Antiquity, reflected the method of the Alexandrian lecture-course. Its characteristic features, beside the overall division into numbered lecture units (\textit{taʿālim}, sg. \textit{taʿlim}, \textit{πρᾶξις}), are found in all of Ibn al-Ṭayyib’s commentaries:

- The introductory \textit{capita} (\textit{κεφάλαια}) preceding each of the Alexandrian commentaries of Aristotle’s works, in the school of Ammonius, fully elaborated by Olympiodorus and his disciples, as also other, such as medical, works of the school canon (for Ibn al-Ṭayyib’s commentary on Aristotle’s \textit{De Caelo}, surviving only in fragments, these are not extant).

The familiar structure of the continuous commentary:

For each section, the θεωρία provides a general doctrinal analysis and discussion, while the λέξις offers an exegesis focusing on individual sentences and words.

In contrast to Ibn al-Ṭayyib’s commentaries on Porphyry’s Ḥṣagōge and Aristotle’s Categories, the elements of his De Cælo comments are not presented in a single multipart exposition, but in two separate literary units:

- On the one hand, we have the Aristotelian text with marginal comments and summaries of each pericope (this is what we find in the long fragment of the Paris manuscript).
- Then, by good luck, a fragment from Ibn al-Ṭayyib’s Great Commentary, referred to as al-Tafsīr al-kabīr in Ibn al-Ṭayyib’s marginal comments and summary tafsīr of the Paris ms., has survived in three folia from the Cairo Geniza. This contains the end of his exposition of book II, and by giving the author’s name, links the work with the references to al-Tafsīr al-kabīr in the summaries of the mufassir intercalated in the Paris manuscript between the sections of Aristotle’s text. As against the explanatory scholia, taʿālīq, of the Paris ms., the Tafsīr al-kabīr provides a systematic analysis of Aristotle’s positions and arguments, and concluding summaries ‘alā sabil al-ṭamara wa-l-iḥtiṣār “in the way of presenting the gist in concise exposition”.

The manuscript evidence is confirmed by Ibn al-Sarī, who in his testimony quoted above, p. 227, explicitly attributes to Ibn al-Ṭayyib two commentaries: “There is another commentary by this Abū l-Farağ without the text [i.e., the lemmata] of Aristotle’s discourse, in this he reports the error [sc. the error found in De Cælo III 8 discussed by Ibn al-Sarī in his treatise] just as in his greater commentary” – calling the ‘greater commentary’ the one found in the Paris ms. containing text and annotation.

It is clear, however, from the references of the mufassir in ms. Paris, recapitulating the preceding sections, where Ibn al-Ṭayyib himself refers to “our great commentary” at several instances (tafsīrunā l-kabīr, fol. 104a, 105b, 115b, 120b, etc.), that this one is the theōria preserved in the Geniza fragments. He also mentions (fol. 109a and 111b) his own tafsīr li-Qāṭīġūryās, a literal commentary on the Categories; here, Abū l-Farağ ibn al-Ṭayyib’s commentary is indeed extant (as also his Tafsīr k. Ḥṣāġūǧī, on Porphyry’s Ḥṣagōge), and the relevant references can be identified in their proper places.49

4.7.2 Text and Tafsīr

4.7.2.1 Divisions of the annotated text

The Aristotelian text (lemmata introduced by qāla Arisṭūṭālis) is divided, as in every other commentary work of Abū l-Farağ ibn al-Ṭayyib, into lecture units, Arabic ta’ālīm (Greek πρᾶξις). Book I of De Cælo contains 16 such chapters, ta’ālim, the extant parts of Book II are from ta’ālim 1 to 5. References to al-Tafsīr al-kabīr show that this was divided into identical units of ta’ālim. The ta’ālim, again, are divided into shorter pericopes, explained sentence by sentence, sometimes word by word, in the marginal scholia. Each pericope is followed by a short summary comment, introduced by the words qāla l-mufassir, of the preceding lemma. In this, the commentator gives the result of the argument (ḥuǧǧa) and characterizes the demonstrative procedure – bayān ‘explanation’, bayān ḣadali (‘dialectic demonstration’), burḥān (‘demonstrative proof’), solution of an aporia (šakk). Here is a survey of the pericopes and the comments given:

49 Ed. Ferrari, as quoted above, p. 229, see references given below, p. 261.
• Book I, ta’lim 13 = De Caelo I 9, 277 b 27 (? – fragment starting at 279 a 3) to 279 b 3 (fol. 110a-112b): There cannot be more than one world.

Pericope extending from ca. 279 a 2 (fragment beginning at 279 a 3) to 279 a 5.

Closing Tafsīr: “This is the argument (ḥuǧğa) showing that the entire matter is in this world”.

Pericope I 9, 279 a 6-10 (om. 10-11 ἀλλ’ εἷς καὶ μόνος καὶ τέλειος οὗτος οὐρανός ἐστιν).

Closing Tafsīr: “This is the result of the discourse” (sc. proving that there are not, nor were nor will be, many worlds).

Pericope I 9, 279 a 11 – 279 b 3: There is no place outside of the heaven, nor void nor time.

Closing Tafsīr points out the result of “what follows the preceding exposition (ḥayān) that the world is one, sc. that outside the world there is no body, no place, no void, and no time”.

• Book I, ta’lim 14 = De Caelo I 10, 279 b 4 – 280 a 34 (fol. 112 b - 119 b): Opinions on the duration of the world, if it is eternal, ungenerated or generated, imperishable or perishable.

Pericope I.10: 279b4 - b17: The problem under discussion and previous views.

Closing Tafsīr: “He [Aristotle] imposes upon himself to investigate the issue of the world, if it is generable (kā’īn) or ungenerable, perishing (or: perishable, fāsid), or imperishable, and before this, he enumerates the opinions of the Ancients”.

Pericope I 10, 279 b 17-21: To say that the world is generable, yet is imperishable and unending, is impossible.

Closing Tafsīr: A refutation of this opinion “based on induction (istiqrā’) from how things are” (b 19 ὅσα ἐπὶ πολλῶν ἢ πάντων).

Pericope I 10, 279 b 21-31: What has no beginning, cannot change; to have a beginning implies change, then the world will not be imperishable.

Closing Tafsīr: “This exposition, showing that the world, being generable, must perish, is made by analogy (bi-tariq al-qiyās)”, closing with reference to a commentary given “at the beginning of the lecture in the Great Commentary” fī ṣadr al-taʿlīm min al-tafsīr al-kabīr (f. 115b).

Pericope I 10, 279 b 32 – 280 a 2: Against justifying the [Platonic] account of generation in terms of a geometrical model (ὁμοίως ... τοῖς τὰ διαγράμματα γράφουσι, ArT: kamā anna l-muhandīsina yafālīna ḥā ḥālī l-murakkabati min ḥuṭūtin katīrinat ... aṣḥābū l-handasati), not a physical process.

Closing Tafsīr: This is the argument used by the adherents of Plato in defense of his tenet that the world is generated (sc. in time, muhdat).

Pericope I 10, 280 a 2-11: Refutation of the geometrical model of generation where the elements of a construction, order and disorder exist simultaneously, this being incompatible with an everlasting world.

Closing Tafsīr: “This is part of the argument (ḥuġğa) they put forward on behalf of Plato and his tenet that the world is generable, opining that he was conceiving this as ‘becoming’ in the mind, not in existence”.

Pericope I 10, 280 a 11-23: Against the theory of alternating constitution and dissolution of the world.

Closing Tafsīr: “He refutes the word of those who say that it (the world) comes into being at one time and perishes at another time, and that this succession will not end”.

Studia graeco-arabica 7 / 2017
Pericope I 10, 280 a 23-28: Against the atomist theory of one of several worlds coming to be and perishing once only, “and we shall explicate later if this is possible or not”.

Closing Tafsir: Explicating the foregoing announcement: “He means the doctrine that the world comes into being all at once and then perishes, and will not return a second time”.

Pericope I 10, 280 a 28-34: Announcing to examine the doctrine of the Timaeus (Plato is not named neither in Greek nor in the Arabic version), viz. that the world comes into being, but will continue eternally for the rest of time, unending and imperishable. “They maintained this tenet at random” (φυσικῶς: kamā ttafaqa Ar[ a loose rendering of Syriac kyānāʾīt?] – Ar has: bi-qawlin tabiʿyyin).

Closing Tafsir: Restating the basic dilemma – some pretend that a thing may be generated but will not perish, and others say that there is something ungenerated that may perish, “and we will revert to investigating the truth of the matter, in good order (ʿalā tariq al-qānūn), tomorrow. And here ends the lecture”.

- Book I, taʿlim 15 = De Caeo I 11, 280 b 1 – 281 b 18 (fol. 99a – 106b): Analysis of the terms ‘ungenerated’ and ‘generated, ‘perishable’ and ‘imperishable’, ‘possible’ and ‘impossible’. A thing cannot have a capacity for opposites at the same time.

Pericope I 11, 280 b 1-6: Ungenerable vs. generable, perishable vs. imperishable.

Closing Tafsir: Aristoteles imposes upon himself to study the implications (muzāwaqa ‘pairing’) of generable/coming-to-be (kāiʿ) & perishable (fāsid), ungenerable (ḡayr kāiʿ) & imperishable (ḡayr fāsid), and to begin with, to enumerate the significations of these words.

Pericope I 11, 280 b 6 – b 20: Ungenerable vs. generable.

Closing Tafsir: This is an enumeration of the several uses of these words.

Pericope I 11, 280 b 20 – 281 a 1: Perishable vs. imperishable.

Closing Tafsir: He enumerates the various significations in order to specify the meanings intended in the present context.

Pericope I 11, 281 a 1-19: The meaning of ‘possible’ (li-l-šayʿ quwwa ‘having power’) vs. ‘impossible’ (laysa lahū quwwa ‘not having power’).

Closing Tafsir: He defines ‘strong’ vs. ‘weak’ power in respect to the limit (ḡāya) or falling short of a limit.

Pericope I 11, 281 a 19-27: A difficulty arising from the definition of capacity with respect to a maximum limit.

Closing Tafsir: For the solution of this aporia (ḥall al-šakk), reference is made to the first part of the lecture in the Great Commentary (ṣadr al-taʿlim min al-Tafsir al-kabīr).

Pericope I 12, 281 a 28 – b 2: The capacity that a thing obtains to be or not be for a limited time of either state.

Closing Tafsir: He excludes that for one thing, there may be the capacity for two contraries during an unlimited time. Reference is made to the first part of the lecture in the Great Commentary (ṣadr al-taʿlim min al-Tafsir al-kabīr).

Pericope I 11, 281 b 2-18: The distinction between false (kadhīb) and impossible (muḥāl, ‘absurd’).

Closing Tafsir: He differentiates between the false and the absurd (muḥāl), the possible and the impossible. End of Taʿlim.
• Book I, taʿlīm 16 = De Caelo I 12, 281 b 18 – 282 b 2 (fol. 106b-108b, 89a-91a): That which is for ever cannot be for a certain time only, thus it is not generated; the ungenerated and the imperishable are one, and co-extensive with the existent (yatawassat al-mawğūd, closing taṣfīr, f. 91a).

Pericope I 12, 281 b 18-34: One and the same thing cannot be capable of opposites, viz. both of being always and of not-being always.

Closing Taṣfīr gives a fairly lengthy summary of the argument demonstrating that “it is impossible that a thing has potency for two opposites in infinite time”.

Pericope I 12, 281 b 34 – 282 b 2:

Taṣfīr at the end of taʿlīm: “It has been made clear that the ungenerated and the imperishable are one, co-extensive in regard of (‘in the midst of’) the eternally existent (tabayyana anna ġayru l-kāʾini wa-ġayru l-fāsidi humā wāḥidun yatawassatu l-mawğūda dāʾim).” , closing with a reference that “we have commented upon this at the beginning of the lecture in our Great Commentary” (ṣadr al-taʾlīm min al-Taṣfīr al-kabīr) (f. 91a6).

• Book I, taʿlīm 17 = De Caelo I 12, 282 b 2 – 283 b 7 [? ms. fragment ending with 283 a 30, before lacuna] (fol. 91a-98b, 120a-b): The ungenerated and the imperishable imply (‘follow’) each other: supposing the potency of not-being and that of being to coexist for an indefinite time is absurd.

Pericope I 12, 282 b 2-23: Imperishable implies ungenerated.

Closing Taṣfīr indicates “bayānu ḥāḍa huwa l-bayānu ʿalā anna l-kāʾina yatbaʿu l-fāṣida li-annahumā naqiḍāni li-ġayri l-kāʾini wa-ġayri l-fāṣidi, wa-hāḍāni yatalāżamāni, fa-ḍĀALiḳA bi-hāḍīhi ʿIṣṭāFA, wa-bayānūhā li-mā nubayyinūhū min ḍĀALiKA yatawassatu l-mawğūda fī baʿdi l-awqātī l-maʿdūmu fī baʿdi l-awqātū”.

Pericope I 12, 282 b 23 – 283 a 3 + additamentum:

Both versions add to 282 a 3 a longer gloss: After the relations Z & Θ, E & Z, Η & Θ, Ε & Η have been considered, the relations are arranged in a somewhat more systematic order E & Z, H & Θ, Z & Θ, E & H, followed by the explanation of which matters are designated respectively by the abstract symbols.

Closing Taṣfīr indicates bayān “ʿalā anna l-kāʾina yatbaʿuḥū l-fāṣiḍu wa-l-fāṣiḍu yatbaʿuḥū l-kāʾin” [etc.].

Pericope I.12, 283 a 4-17: Generated implies destructible, indestructible implies ungenerated. First and second argument.

Closing Taṣfīr, stating the preceding “summary explanation” (al-bayān al-muḡmal).

Pericope I 12, 283 a 17-20: Third argument.

Closing Taṣfīr points out the principle (aṣl) repeated here.

Pericope I 12, 283 a 20-24: Fourth argument.

Closing Taṣfīr points out the logical implication (iṣlām).

Pericope I 12, 283 a 24-29: The destructible must at some time perish.

Closing Taṣfīr summarizes the preceding huğga, and refers to a detailed commentary given at the beginning of the respective taʾlīm in his Taṣfīr al-kabīr.
Pericope I 12, 283 a 29 – b 6 [lacuna in ms. after fol. 120, 283 a 30 ἢ ἁγένητον – b 7 ὅτι γὰρ ἔστιν ἠστιν]

• [Book I, taʿlīm 18, division lost in lacuna] = De Caelo I 12, 283 b 6 [?]–22 [extant text 283 b 7–21 only] (fol. 121, 124): It is impossible that the ungenerated be perishable, or that the imperishable be generated, because if there was in it a potency to perish, this potency cannot be both realized and not realized with respect to a past state.

Pericope I 12, 283 b 6

Closing Tafsīr summarizes “ḥāḍḥi l-ḥuǧǧatu l-ʾāḫiratu llatī yubayyinu bihā annahū ṣayrū mamkinin an yakūna l-ṣayrū ṣayrū fāsidan wa-ʾl-ṣayrū ṣāsidin kāʾinan”.

Pericope I 12, 283 b 11: ἐστὶ δὲ ἐνεργείᾳ...

Closing Tafsīr defines the doubt (šakk) raised on the potency for and actuality of opposite states.

Pericope I 12, 283 b 12-17

Closing Tafsīr on the solution of the aporia raised in the last paragraph (ḥāḍā huwa hall al-šakk...), concerning the impossibility of a potency for opposites to be realized simultaneously.

Pericope I 12, 283 b 17-22 [lacuna, 283 b 21-22 καὶ ὑπὸ τῶν κτῶν τούτων ψευδεπτερί]: It is physically impossible for what is eternal a parte ante to perish later, and v.v. (καὶ ψευδεπτερίς δὲ καὶ μὴ καθὸλου σκοποῦσιν: Arτ “exposing [this error] by induction from the physical things, not by demonstration, as we did before” (bi-l-istiqrāʾi mina l-umūrī l-tabiʿiyyati la bi-l-giyāsī kamā fāʾalnā fi-mā salafā, cf. above, Tafsīr on 272 b 19).

[Tafsīr lost in lacuna].

The extant part of Book II starts with the second pericope of taʿlīm 1:

• Book II, taʿlīm 1 = De Caelo II 1 [283 b 26-30 missing due to the loss of 2 folia, 283 b 30 −284 b 5, II 2, 284 b 6 – 285 a 1 (fol. 73-78) [285 a 2-16 lost in lacuna of 2 folia], 285 a 16-31 (fol. 109) [285 a 31 − 286 a 2 lost in lacuna of 2 folia].

Pericope: De Caelo II 1 [283 b 26]– 284 a 2: resumé of the proofs, closing Book I (Ch. 8-12), that the heaven has neither come to be nor will perish.

Tafsīr summarizing Aristotle’s bayān that the heaven is ungenerable and imperishable.

Pericope II 1, 284 a 2-11: The belief of the Ancients in the eternity of the noble, encompassing heaven. Tafsīr summarizes bayān of the heaven being ungenerated in regard of the views of the Ancients.

• Book II, taʿlīm 2 = De Caelo II 3, 286 a 3-17, lost in lacuna], 286 a 17 – b 7 (fol. 122-123) [286 b 7-9 lost]: Motion and rest in the universe. The heavenly eternal movement must be circular; there must be a centre at rest, namely earth, and its contrary, fire, and the corresponding movements, and there are several revolutions of the celestial bodies.—II 4: [286 b 10 − 287 a 22 lost in lacuna of 2 folia], 287 a 23 – b 21 (fol. 63-65): The shape of the heavenly body is spherical.

Pericope ending at 287 a 30.

Tafsīr on II 4, 287 a 30: al-ḥuǧǧa al-ṭālīṭa fi anna šakl al-samāʾ kuri “the third argument proving that the shape of the heaven is spherical” (f. 63b).

• Book II, taʿlīm 3 = De Caelo II 5, 287 b 22 – II 6, 289 a 10 (f. 65b ult.–80.11): The rotation of the sphere of the fixed stars is from right to left. It is perfectly regular.
Pericope II 5, 287 b 22 – 288 a 12.

Tafsīr sumarizing the result of the argument: “He gives the cause for which the sphere of the fixed stars moves from the Eastern point forwards, and not from the Eastern point backwards, and so rises above us from the direction of the West”.

Pericope II 6, 288 a 13-27: The movement of the heaven is perfectly regular.

Tafsīr on II 6, 288 a 19 (regularity of the circular movement). Cross-reference to the initial part of the lecture in the Great Commentary (‘alā mā šaraḥnā fi sadr al-taʿlīm min al-tafsīr al-kabīr, f. 69 b 7).

Pericope II 6, 288 a 27 – b 6: Irregularity in the circular movement is neither caused by the heaven itself nor by the mover.

Tafsīr following II 6, 288 a 27: “First explanation” (ḥāḍā l-bayān al-awwal allaḏī yubayyin bihi anna ḫarakat falak al-kawākib al-tābita mustawiya). Closing reference to the “initial part of the lecture in the Great Commentary (sadr al-taʿlīm min al-tafsīr al-kabīr) (f. 69b)”.

Pericope II 6, 288 b 6: “ḥāḍāl-bayān al-tānī fi anna ḫarakat falak al-kawākib al-tābita wāḥida mustawiya”, closing with a reference to the Great Commentary: wa-qad šaraḥnāhu fi sadr al-tāʾlīm min al-tafsīr al-kabīr “and we have commented upon this at the beginning of the taʿlīm of the Great Commentary” (f. 70b).

Tafsīr following II 6, 288 b 30: ḥāḍā l-bayān al-rābiʿ, with a reference to the exposition at the beginning of the Great Commentary (f. 79a).

• Book II, taʿlīm 5 = De Caelo II 8, 290 a 29 – b 11 [breaking off after φανερὸν δ’ ἐκ τούτων = wa-ẓāhirun mimma qulnā]) (f. 88b ult.): The stars having no organ for movement, they have no self-movement.

• Book II, taʿlīm 4 = De Caelo II 7, 289 a 11-35 (fol. 80b11-82b2): The nature of the stars is that of the heavenly body in which they exist; albeit emitting heat and light, they do not consist of fire. — II 8, 289 b 1 – 290 a 29 (fol. 80b11–87b apu.): The motion of the stars: The sphere moves, while the stars are at rest, having no movement of their own.

Pericope 290 a 13-24. The movement of the stars.

Tafsīr following II 8, 290 a 13-24: Solution of the aporia (ḥall al-šakk): The stars are not self-moving independently of their spheres.

• Book II, taʿlīm 5 = De Caelo II 8, 290 a 29–b 11 (fol. 87b pu.–88b11); II 9, 290 b 12 [breaking off after φανερὸν δ’ ἐκ τούτων = wa-zāhirun mimma qulnā]) (f. 88b ult.): The stars having no organ for movement, they have no self-movement.

Pericope II 8, 290 a 29 – b 11: The stars have no organ for movement.

Tafsīr following II 8, 290 b 11: This is the second, dialectical explanation concerning the motion of the stars (ḥāḍā l-bayān al-tānī al-ḡadali).

Pericope II 9, 290 b 12 [breaks off after 290 b 12 φανερὸν δ’ ἐκ τούτων = wa-zāhirun mimma qulnā]

In his annotation to De Caelo 19, 279 a 30 ἐν τοῖς ἐγκυκλίοις φιλοσοφήμασι, the author refers to his Tafsīr li-Qāṭīġūryās, where the exoteric writings of Aristotle are defined in the context of the general Prolegomena to Aristotle’s work, v. Ferrari (ed.), Der Kategorienkommentar von Abū l-Faraǧ ʿAbdallāh ibn at-Tayyib (above, p. 229), Arabic text, p. 13.18-25: “lammā kānat kutub Arisṭūṭālis tanqasim ilā qismayn, ilā l-ẓāhira wa-l-ḫafiyya, ṭāğaba an takūn šūrat kalāmihī ‘alā darbayn, zāhir wa-ḥafīyy, ammā l-ẓāhir fa-bi-manzilat rasāʾilihi wa-kutubihi l-ḡadaliyya, fa-inna ḥāḍīhi l-kutub ista mala fiḥā zuhār al-maʾānī wa-wuḍūḥ al-alfāẓ.” — In his commentum on De Caelo II 2, 284 a 22 πολλάχως λέγεται τὸ πρώτον, Ibn al-Ṭayyib points to the section on πρώτον//octetum, Cat. 12, 14 a 26 - b 23, but without referring to his own commentary (cf. Tafsīr kitāb al-Qāṭīġūryās, ed. Ferrari, p. 389ff. [theoria], 395ff. [praxis]).
4.6.2.2 Ibn al-Ṭayyib’s Marginal Annotation (taʿlīq)

As a specimen of Ibn al-Ṭayyib’s annotation accompanying his own translation of *De Caelo*, here is the passage from *De Caelo* I 9 on the transcendent beyond (τὰκεῖ), the realm of αἰῶν “ἀθάνατος καὶ θεῖος”, already presented above, § 4.5.2, pp. 240-6, for our comparison between the versions of Ibn al-Biṭrīq and Ibn al-Ṭayyib:

[279 a 16] Φανερὸν ἄρα ὅτι οὔ- [279 a 18] τέ τόπος οὔτε κενὸν οὔτε χρόνον ἐστίν ἔξω. Λίγοτερον οὔτε ἐν τῷ πάντα ἄρκει πέρικε, οὔτε χρόνον αὐτά ποιεῖ γηράσκειν, οὔθ ἐστίν οὐδενὸς οὐδεμία μετά- [279 a 20] βολή τῶν ὑπὲρ τὴν ἐξωτάτης τεταγμένης φοράν, ἀλλ’ ἀναλλοίωτα καὶ ἀπαθῆ τῷ ἀριστήτῃ ἐχομένῳ ζωῆς καὶ τῇ αὐταρκείᾳ διατελεί τὸν ἀπαντα αἰῶνα. (Καὶ γὰρ τούτῳ τούνομα θεῖος ἔφθεγγε τοῖς ἀρχαῖοι θεοῖς παρά τὸν ἄρχοντα τῶν ἀρχαίων, τὸ γὰρ τέλος τὸ περιέχον τὸν τῆς ἑκάστου ζωῆς χρόνου, οὔ μηθεῖν ἐξω κατὰ φύσιν, πλὴν ἐκάστοτε κέκληται. Κατὰ τὸν αὐτὸν δὲ λόγον καὶ τῷ τοῦ πάντων ὑπέρ τούπλας τέλος καὶ τὸ τὸν πάντα χρόνον καὶ τὴν ἀπειρίαν τεταγμένου τέλος αἰῶν ἐστι, ἀπὸ τοῦ αἰῶνος ἐξαιτίας τὴν ἐπωνυμίαν, ἀθανότος καὶ θεῖος. Τόθεν καὶ τοῖς ἄλλοις ἐξήρτηται, τοῖς μὲν ἀκριβέστεροι τοῖς δ’ ἀμαυρῶς, τὸ εἶναι [279 a 30] τοῖς ζήσεις. Καὶ γὰρ, καθὰ πρὶν ἐν τοῖς ἁγιασμοῖς φιλοσοφήσαντες περὶ τὰ θεία, πολλάκις προφαίνεται τοῖς λόγοις ὅτι τὴν ἑκάστοτε ἄμετατον ἀναγκαῖον εἶναι πάντως τοῖς ἀκριβέστεροι καὶ ἀμαυρῶς ἐχον μαρτυρεῖ τοῖς ζήσεις. Οὔτε γὰρ ἄλλο κρεῖττον ἐστὶν ἀλλ’ ἐπεὶ συνελθησαν καὶ ἀκριβείας ἐν τῆς ἑκάστου ζωῆς χρόνου, οὔτε γὰρ οὐδενὸς ἐαυτοῦ καλῶς οὐδενός ἐστιν. [279 b 1] Καὶ ἄπαυστον δὴ κίνησιν κινεῖται εὐλόγως· πάντα γὰρ παύεται κινούμενα ὅταν ἔλθῃ εἰς τὸν ἑαυτοῦ τόπον, τοῦ δὲ κάθετο τοῦ ὑπέρ τοῦ ἑαυτοῦ καλῶς ἔχον μαρτυρεῖ τοῖς ζήσισι. Οὔτε γὰρ ἄλλο κρεῖττον ἐστὶν.}

Other marginal annotations:

<table>
<thead>
<tr>
<th>Passage</th>
<th>Explanation</th>
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<tbody>
<tr>
<td>[279 a 16] Φανερὸν ἄρα ὅτι οὔ-</td>
<td>We have explained in what precedes that outside the heaven there is no body, and it is impossible that there should be any body at all. And if this the case, it is clear and evident that there is no place nor void nor time outside of the heaven.</td>
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<tr>
<td>[279 a 18] τέ τόπος οὔτε κενὸν οὔτε χρόνον ἐστίν ἔξω. Λίγοτερον οὔτε ἐν τῷ πάντα</td>
<td>No annotation (taʿlīq) on this passage.</td>
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<tr>
<td>[a18]</td>
<td>Therefore, what is there is not in a place, Meaning: the encompassing sphere.</td>
</tr>
<tr>
<td>[a19]</td>
<td>and it is impossible that time should cause it to age, Meaning: to count its number and to add to it.</td>
</tr>
<tr>
<td>and it is impossible for the encompassing body to change or to alter at all,</td>
<td>Meaning: because to its form there is no opposite, as explained, and it is not moved from one state to another.</td>
</tr>
<tr>
<td>[a21]</td>
<td>but is is stable and unchanging, and does not receive any affection, That is to say: because to its form there is no opposite.</td>
</tr>
<tr>
<td>[a21-2]</td>
<td>Indeed, its life is stable, enduring for eternity (dahr, αἰών), living in the best of ways. That is to say: because its form will never be separated from its matter.</td>
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<td>Line</td>
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<tr>
<td>[a22-3]</td>
<td>Therefore, the Ancients were right in coining the name of <em>dahr</em>, driving home the point fully</td>
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<tr>
<td>[a23-4]</td>
<td>by saying that the time encompassing the life of each one of the beings having life,</td>
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<tr>
<td>[a24]</td>
<td>there being no other natural time after it,</td>
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<td></td>
<td>is the perpetual eternity (<em>al-dahr al-abadī</em>).</td>
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<tr>
<td>[a26-7]</td>
<td>Therefore we say that the sphere is encompassing all of time, which is the eternity.</td>
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<tr>
<td>[a27-8]</td>
<td>Actually, this name is derived from its activity, since this (<em>al-dahr</em>), is lasting for ever unto eternity, divine and immortal.</td>
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<td>[279 a 29]</td>
<td>It is closer in relation to some things,</td>
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<td></td>
<td>and to other things, more remote.</td>
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<td>[279 a 30]</td>
<td>We have mentioned in our books on the exoteric philosophy, i.e those we have written for the public (<em>al-ʿāmma</em>)</td>
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<td>[a32]</td>
<td>and have stated that this spiritual entity must not change nor perish by necessity,</td>
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<td></td>
<td>because it is the cause of all that comes after it in respect of its world (<em>min ʿālamihī</em>, leg. <em>min ʿilalihī</em> ‘its causes? cf. versio B),</td>
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<td></td>
<td>and there is not after it another cause.</td>
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<tr>
<td>[a33]</td>
<td>It is of the quality that we have stated, it does not undergo alteration nor change, it is complete and perfect, lasting until eternity, divine, and evil will not approach it,</td>
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<thead>
<tr>
<th>Line</th>
<th>Translation</th>
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<tbody>
<tr>
<td>[a33–4] nor is it in need of any good of which it is the cause, and there is not above it another cause by which it would be caused in that this would be moving it.</td>
<td>Meaning: since it is governing everything, and there is no other thing governing itself. That is, exercising natural government, since above the sphere of the fixed stars there is no other sphere preceding it but the First Cause, in fact this movement is a natural movement.</td>
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<tr>
<td>[279a34] And if there should be another cause, this as well would be stable, steady and eternal, and there would not be beyond it something more excellent (κρεῖττον).</td>
<td>Meaning: if it should turn out that a cause is preceding it, the same description would apply to it, and no other (cause) would precede it.</td>
</tr>
<tr>
<td>[a35] Further, this – i.e., this spiritual body – does not receive any affection (πάθος, for φαῦλον), and its movement is eternal and unending.</td>
<td>Meaning: because it has no opposite, and change occurs in opposites.</td>
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<tr>
<td>[279b1] and its movement is eternal and unending.</td>
<td>Meaning: because its form is eternal and stable.</td>
</tr>
<tr>
<td>It is by necessity that this movement belongs to it,</td>
<td>Meaning: the perpetual (movement) that has no ending.</td>
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<td>[b1–2] because in all things, their movement comes to rest once they arrive at their (proper) places;</td>
<td>Meaning: when they are outside of their (proper) place, and they return until they reach their [...].</td>
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<td>[b2–3] but as for this superior, noble body, its movement does not come to rest at all,</td>
<td>Meaning: because its form is one and does not weaken.</td>
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<tr>
<td>[b3] because at the starting point (mabdaʾ, ἀρχή) from which the movement starts, it will also cease, and therefore its movement will be perpetual.</td>
<td>Meaning: it takes off from one point and returns to it since its movement is circular. Meaning: because there is no limit to it at which it should halt.</td>
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<tr>
<td>The Commentator says: This is what follows the explanation that the world is one; viz. that outside of the world there is neither body nor place nor void. And here ends our lecture.</td>
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</tbody>
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50 Lacuna, last word cut off in the binding.
4.7.3. Ibn al-Ṭayyib’s Tafsīr kitāb al-Samāʾ

4.7.3.1 Character and Identity

Like in Ibn al-Ṭayyib’s extant commentaries on Aristotle’s Categories and Porphyry’s Isagoge, a literal commentary – the λέξις of the Greek commentary-lecture – provides, for each section, an exegesis focusing on individual sentences and words. In the case of De Caelo, however, Ibn al-Ṭayyib’s own translation was combined with the literal exposition in the first instance, given in the form of marginal notes. Then, the Great Commentary, al-Tafsīr al-kabīr, gave the exegesis of Aristotle’s doctrine and argument, i.e. the θεωρία part of the commentary was given separately, possibly as a separate codicological unit.

4.7.3.2 The Manuscript

The surviving fragment of the Tafsīr provides a specimen of three connected leaves, including the end of Book II, with an explicit giving the title and author’s name. Apart from the author’s self-references in the taʿālīq of the Paris fragments (acephalous, hence a priori anonymous), we have no other testimony apart from the meticulous and significant report of Ibn al-Sarī, and a summary mention found in the report on Ibn Sīnā’s shopping list of books recovered from Baghdad (v. supra, § 4.2.1, p. 230).


Expl. f. 3b:

ينقض التعليم والمقالة الثانية من كتاب السماء
tفسير الشيخ الفيلسوف الفاضل أبي الفرج عبد الله بن الطيب رضي الله عنه على طريق الثمرة والاختصاره

End of the lecture, and of the second treatise of the Book on the Heaven with commentary of the excellent master, the philosopher Abū l-Farağ ʿAbdallāh ibn al-Ṭayyib, may God be pleased with him, using the method of tamara and abridgement.

The term tamara (‘fruit’, i.e. ‘core, gist of the matter’), and the verbal noun istītmār (‘harvesting, reaping the crop, exploitation’), are familiar from Ibn al-Ṭayyib’s summaries (ṭimār, tamara) of the works of Galen and other Greek authors.53

52 I want to express my gratitude to Professor Langermann who first informed me of this important finding, and put at my disposal his own transcription of the Arabic text.

53 See the list of his writings in Ferrari, Der Kategorienkommentar (above, p. 229), pp. 34-42.
4.7.3.3 Contents and structure

The fragment covers *De Caelo* Book II, Chapter 14, treating two topics: (a) The place of the earth — The earth is at rest in the center of the cosmos (296 a 25 – 297 a 6); (b) The earth is spherical in shape 297 a 6 – 298 a 20), including some points of the doxography of chapter 13. A characteristic of Ibn al-Ṭayyib’s commentaries, known from his extant *Tafsīr* of Aristotle’s * Categoriae* and Porphyry’s *Isagoge*, is the systematic analytical structure, dividing, defining and sorting Aristotle’s arguments, the steps taken for investigating a topic (*matlab*, ἐπιχείρημα), classifying the proofs (*huǧǧa*), and the objections and problems to be solved (*šakk*, ‘doubt’, ἀπορία), evaluating the strength of his expositions in terms of explanation (*bayān*), demonstration (*burhān*) and dialectical proof (*burhān ǧadalī*).

Distinctive of his method is the reduction of each topic to the elements of logical procedure. This goes back to his predecessors of the Baghdad school of translators and transmitters of Aristotle’s logic. On the one hand, we have the recasting of the propositions and arguments in terms of the figures of the syllogism; on the other hand, the reasoning and the evaluation of the underlying principles follow the fundamentals of Aristotle’s * Analytica Posteriora* (in Arabic, *Kitāb al-Burhān*). The belief that each science, universal or particular, is resting on its own principles and following its specific basis in demonstrating fact and reason (*An. Post.* II 27-28) is transparent in the very outline of our chapter where Ibn al-Ṭayyib divides the arguments between those of ‘the metaphysician’ (*al-ilāhi*) on the one side and the ‘physical scientist’ (*al-ṭabīʿī*) on the other.

It may have been the pedantry of his numbered catalogues of topical divisions, not all of them easily applicable to the Aristotelian text, which Ibn Sinā found so exasperating. Nevertheless, Ibn Sinā’s hierarchical divisions of his *summae* of philosophy and medicine may well have been inspired in a way by this faithful continuator of the Greek commentary tradition. Even more clearly Ibn Rušd was influenced by his predecessor, although he rarely admits to having consulted him (see § 4.2.3, pp. 230-33). The analytical structure of the *Middle Commentary* on *De Caelo* (*Talḫīṣ al-Samāʿ wa-l-ʿālam*) with its fine division into numbered units of ǧumla and *matlab*, faṣl and qism, topics of bayān, šakk, and burhān breathes the same obsession with the science of demonstration.54

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[Fifteen arguments for the earth being at rest in the centre of the cosmos]

[Fifteen arguments for the earth being at rest in the center, this will be made clear by fifteen arguments:]

Fifth argument: The earth descends by its nature. If it were a star (residing) in the ether, it would be in a place outside [i.e. contrary to] its nature.

Cf. II 14, 296 a 25-30 οἱ μὲν αὐτὴν ἓν τῶν ἄστρων εἶναι ποιοῦσιν ... Ὅτι δ' ἐστὶν ἄδύνατον, δὴ λαξοῦσιν ἄρχην ὡς εἰπερ φέρεται εἰτ' ἐκτὸς οὐσα τοῦ μέσου εἰτ' ἐπὶ τοῦ μέσου, ἀναγκαίον αὐτὴν βία κινεῖσθαι ταύτην τὴν κίνησιν· οὐ γὰρ αὐτῆς γε τῆς γῆς ἐστιν.

Aristotle’s first argument, 296 a 25-34. The motion attributed to the earth by certain philosophers (viz. the Pythagoreans, supra II 13, 293 b 15-32) will not be a natural movement, but an enforced (βίᾳ) movement, since the parts of the earth do not have such a movement, but actually move towards the centre (ἐπὶ εὐθείας πάντα φέρεται πρὸς τὸ μέσον).

Sixth argument: Waters are (enclosed) in the hollows of the earth and in the oceans; it follows necessarily that the oceans and rivers [rather] belong to the †ethereal† body.

Cf. II 4, 287 b 5-7 ὑπόθεσιν λαμβάνουσιν ὅτι πέφυκεν ἀεὶ συρρεῖν τὸ ὕδωρ εἰς τὸ κοιλότερον· κοιλότερον δὲ ἐστι τὸ τοῦ κέντρου ἐγγύτερον.

Seventh argument: Whereas they [sc. the Pythagoreans] would extoll the nobility of fire, they debased it, and made the earth higher than it in the structure of the world.

Cf. II 13, 293 a 30 – b 1 Τῷ γὰρ τιμιωτάτῳ οἴονται προσήκειν τὴν τιμιωτάτην ὑπάρχειν χώραν, εἰναι δὲ τῷ πῦρ μὲν γῆς τιμιώτερον, τὸ δὲ πέρας τοῦ μεταξύ, τὸ δ' ἐσχατον καὶ τὸ μέσον πέρας· ὥστε ἐκ τούτων ἀναλογιζόμενοι οὐκ οἴονται ἐπὶ τοῦ μέσου τῆς σφαίρας κεῖσθαι αὐτήν, ἀλλὰ μάλλον (293 b 1) τὸ πῦρ.

Eighth argument: If the earth were not in the centre, what should encompass it, since nothing but the heavy would fit it?

Ninth argument: From the earth and the other elements, the living beings are constituted, so it is necessary that the animalia belong to the ethereal body, and the ethereal body will be affected through its mixture with the bodies of the world of generation.

Tenth argument: If the earth were in motion, there would not be left anything stable in the world for the periphery to move around it.

Eleventh argument: The fact that [otherwise] the nature of the world would be reversed, so that the heavy would be above by nature, and the light would be below by nature.

Cf. II 14, 296 b 6-9 ἐπὶ δ' ἴσον τῶν μορίων καὶ ὅλης αὐτῆς ἡ κατὰ φύσιν ἐπὶ τὸ μέσον τοῦ παντὸς ἐστιν· διὰ τούτῳ γὰρ καὶ τυγχάνει κειμένη νῦν ἐπὶ τοῦ κέντρου.
 وإنّما أنّ الأرض ساكن في المركز، فيتبين بخمس عشرة حجة ...

3. والخامسة أنّ الأرض ترسل بطاعباً،
فلو كانت كوكباً في الأثير لقد كانت تكون في مكان خارج عن الطبع.

6. والسادسة أنّ المياه في تقغيرات الأرض والبحار، فوجب أن تكون البحار والأنهار في الجسم الأثيري.

9. والسابعة أنّه من حيث زلفوا شرف النار، وضعوا عنها وجعلوا الأرض أعلى منها في وضع العالم.

12. والثامنة إذا لم تكن الأرض في المركز، فماذا تحتوي عليه ولا يوافقه إلاّ الثقيل.

15. والثانية أنّ من الأرض وباقي الأطلسات تتكون الحيوانات، فيجب أن تكون الحيوان من الجسم الأثيري، وينفعل الجسم الأثيري بامتزاجه مع أجسام عالم الكون.

18. والعاشرة إذا كانت الأرض تتحرك، فلا يبقى بعد ثابت في العالم يتحرك عليه المحيط.

21. والحادية عشرة أن يعكس طباع العالم فيكون الثقيل فوق بالطبع والخفيف أسفل بالطبع.
Twelfth argument: ‘Centre’ is an homonymous word: Applied to the centre of a substance, it is the noblest part, like the heart relative to the animals and the ether relative to the world; the middle in a magnitude is the point of the centre, like the navel in the human body. But to say that the fire must be in the centre of the magnitude, while extolling its nobility, is pointless.

Thirteenth argument: Not the fire is the noblest body of the world [pace the Pythagoreans], but the ether.

Fourteenth argument: By saying that the noblest body in the world must be in the noblest place, they imply this to be the outermost place, but the centre and the middle in a substance are not in such a place.

Cf. again, II 13, 293 a 30 - b 1: Τῷ γὰρ τιμιωτάτῳ οἴονται προσήκειν τὴν τιμιωτάτην ὑπάρχειν χώραν, εἶναι δὲ πῦρ μὲν γῆς τιμιώτερον (... ἀλλὰ μᾶλλον τὸ πῦρ.

Fifteenth argument: If the place of fire were the noblest of the places, then the ether would be in this place because it is the noblest of the bodies.

Cf. II 5, 288 a 4-12: ἡ πρὸς τὸν ἄνω τόπον (κ. φορὰ) τιμιωτέρα (θειότερος γὰρ τόπος ὁ ἄνω τοῦ κάτω) ... [1. 9] Εἰ γὰρ ἔχει ὡς ἐνδέχεται βέλτιστα (κ. ὁ οὐρανός), αὐτὴ ἀν εἶ ἀιτία καὶ τοῦ εἰρημένου-βέλτιστον γὰρ κινεῖσθαι ἀπλὴν τε κίνησιν καὶ ἀκαταστολήν καὶ ταύτην ἐπὶ τὸ τιμιώτερον.

As for a summary of the remaining arguments he [Aristotle] uses in refuting the (faulty) opinions concerning the earth being at rest, whether the reasoning is based [a] on the resemblance of the circumference to the surface of the sky and the horizon, or [b] its being above the water or above the air, we may dispense with it, because this has been given before at the beginning of the lecture in a summary of the core issues, a repetition being useless.

[a] Cf. II 13, 295 b 10-16: Οἱ μὲν οὖν πλεῖστοι περὶ τὰς αἰτίας ταύτας διατρίβουσιν· εἰσὶ δὲ τινὲς οἱ διὰ τὴν ὁμοιότητα φασίν αὐτὴν μένειν, ἄσπερ τῶν ἁρχαίων Αναξίμανδρος: μᾶλλον μὲν γὰρ οὕθην ἥν ἢ κάτω ἢ εἰς τὰ πλάγια φέρεσθαι προσήκει τὸ ἐπὶ τοῦ μέσου ἱδρυμένον καὶ ὀμοίως πρὸς τὰ ἐσχάτα ἔχον· ἀμα δὲ ἄδυναντος εἰς τὸ ἐναντίον ποιεῖσθαι τὴν κίνησιν· ὡστ' ἐξ ἀνάγκης μένειν.

[b] Cf. II 13, 294 a 28 - b 2: Οἱ δ' ἐφ' ὃδατος κείσθαι. Τούτων γὰρ ἁρχιχότατον παρειλήφθηκεν τῶν λόγων, ὃν φασιν εἰπεῖν Θαλῆν τὸν Μιλήσιον, ὡς διὰ τὸ πλωτὴν εἶναι μένουσαν ὥσπερ ἔξων ὠς τοιοῦτον ἔτερον (καὶ γὰρ τοῦτον ἐπ' ἄρεσα ὡς κατὰ εὐθείαν τὴν γῆν· ἄλλ' ἐφ' ὃδατος), ὡσπερ οὗ τὸν αὐτὸν λόγον ὡς τοῖς πρὶς γῆς καὶ τοῦ ὅδατος τοῦ ὄρχοντος τὴν γῆν· ὥστε γὰρ τὸ ὅδωρ πέρπιε μένειν μετέωρον, ἀλλ' ἐπὶ τούτου (294 b 1) ἐστίν. Ἔτι δ' ὡσπερ ἀρχέρ ὃδατος κατώτερον, καὶ γῆς ὅδωρ· ὡστε πῶς ὄλον τε τὸ κατωτέρον κατωτέρω κείσθαι τοῦ βαρυτέρου τὴν φύσιν;

Now the rule of sense perception is in the midst (fī awsāṭ) of the explanations of the metaphysician in proofs demonstrating “why is the agent among the eternal things?” because He is the final end, since the things effected are beneath him, and through him their perfection is achieved, he being their end.

And the physicist (is concerned with) the final end (gāya, causa finalis) of things specific to them, either forms and actions, or the concomitants, and then the forms are their cause.
والثانية عشر الوسط اسم مشترك يقع على وسط الجوهر، وهذا هو الأشرف فيه، كالقلب من الحيوان والأثير من العالم؛ والأوسط في العظم وهو نقطة الوسط كالسرة في فن الإنسان، فالفقول بأن النار يجب أن تكون في وسط العظم مع تشريفهم لها لا وجه له.
والثالثة عشر ليس النار أشرف أجسام العالم، لكن الأثير.
والرابعة عشر ما قالوا إن الأشرف أجسام العالم يجب أن يكون بالمكان الأشرف، لهذا آخر الأماكن، والمركز والوسط في الجوهر لا يكون في مثل هذا المكان.
والخامسة عشر لو كان مكان النار أشرف الأماكن، لكن الأثير فيه لأنه أشرف الأجسام.
فإما بقاء استثمار الحجج التي رد بها الآراء في سكونها، إن كان لعله تشابه المحيط أو وجه الأخضراء أو العرض أو كونها على ماء أو على الهواء، فنحن نستغني عنه لأنها مضت في صدر التعليم المستمرة، فإعادته لا تقف.
والقانون الحسي في أوسط بيانات الإلهي براهين لَمَ الفاعل في الأزليات، لأنَّ الغاية، إذ كانت المفعولات دويره وله كمالها فهو الغاية، والطبيعي غايات الأمور والخاصة بها.
إذا الصَّور والأفعال وإما اللوازم، فالصور إذن كانت بسببها هـ.

30 [الأثير] الإثري، خ، وحرف الياء النهائي مشطوب
32 [الشرف] الوسط، خ
Langermann 43 [هذا] غايات

f. 2a

f. 2b
The main issues (maṭālib) of this lecture (taʿlīm) are four:

The first is the place of the earth.

The metaphysician says: (It is in) the centre, because this evolves necessarily from the Fifth Nature due to its being at rest; and movement precedes rest, and what comes to be from it comes to be at first, and from rest, at last; and because it (the earth) is close (yuḡāwir) to what is not corrupted.

The physicist says: Because it is heavy and cold.

The second is its movement.

The metaphysician says: It is immobile because it is a totality following its totality in the final end, that is to say, the spherical body.

Cf. II 14, 296 b 6-15: Ἐτι δ’ ἡ φορὰ τῶν μορίων καὶ ὅλης αὐτῆς ἐπὶ τὸ μέσον τοῦ παντός ἐστιν· διὰ τούτο γὰρ καὶ τυγχάνει κειμένη νῦν ἐπὶ τοῦ κέντρου· [...] ἀνάγκη δὴ πρὸς τὸ τοῦ παντός· καὶ γὰρ τὰ κοῦφα καὶ τὸ πῦρ εἰς τοῦναντίον φερόμενα τοῖς βάρεσι πρὸς τὸ ἐσχάτον φέρεται τοῦ περιέχοντος τόπου τὸ μέσον.

The physicist says: Because it is in the place natural to it. If it moved in a straight line, it would either go on infinitely, and go beyond the world – or come to rest while being above it in some place, and still belonging to it. If, by analogy to this, we were to instance a stone, it would not need to be thrown, neither rotating nor rolling nor in a spiral motion, because the sphere needs to be at rest, according to what the metaphysician says.

The physicist: Because this necessitates that inside it there is something around which it should rotate, so it would come part (yatabaddad) and be disrupted; and (as a further consequence), the stone (thrown upwards) would not meet the place (on the ground) corresponding to its azimuthal position (when descending).

Cf. II 14, 296 b 21-25: Φανερὸν τοίνυν ὅτι ἀνάγκη ἐπὶ τοῦ μέσου εἶναι τὴν γῆν καὶ ἀκίνητον, διὰ τὸ τὰς εἰρημένας αἰτίας, καὶ διὰτι τὰ βίᾳ ῥιπτούμενα ἄνω βάρη κατὰ στάθμην πάλιν φέρεται εἰς τσεύτω, κἂν εἰς ἀπειρον ἢ δύναμις ἐξεριπυτῇ.

II 8, 290 a 9-10: τοῦ δὲ σφαιρειδοῦς δύο κινήσεις εἰσὶ καθ’ αὐτό, κύλισις καὶ δίνησις, εἴπερ σὸν κινεῖται τὰ ἄστρα δι’ αὐτῶν.¹

[The third is] its being at rest.

The Metaphysician says: By nature, because it is following a principle in its final end, and because it is a totality.

The Physicist says: Because it is in the last of places, and where it is adjacent to the indestructable.

Opinions were divided about this. Some people said: (the earth is at rest) because of its resemblance to the circumference. Some said: because it is (floating) on the water; and some people said: because it is upon the air.

¹ “Among the arguments which Ibn al-Ṭayyib gives against the theory of the rotation of the earth is the assertion that such a motion would produce centrifugal forces that would cause the earth to break up (yatafakkaka). It is interesting to note that Copernicus attributes this same argument to Ptolemy, but no such statement is found in the Almagest. With the exception of one remark by Koyré, I have not found any discussion of this point” (Langemmann, loc. cit. [supra], p. 265), p. 253). Langemmann refers to Ptolemaeus, De Revolutionibus I 7, and A. Koyré, The Astronomical Revolution, trans. R.E.W. Maddison, Hermann - Methuen - Cornell U.P., Paris - London - Ithaca N.Y. 1973, p. 112 (n. 9 to p. 57); cf. also J.L.E. Dreyer, A History of Astronomy from Thales to Kepler, Dover, New York 1953², pp. 271-2.
ومطالب هذا العلم أربعة:

1. الأول في مكان الأرض.
2. والإلهي يقول: الوسط لأنها واجبة عن الطبيع الخاص لأجل سكونه، والحركة
   تقدّم السكون

فما يكون عنها يكون أولاً وعن السكون أخيراً ولأنها تجاور ما لا يفسد هـ

والطبيعي

يقول: لأنها ثقيلة وباردة هـ
والثاني في حركتها.

والإلهي يقول: غير متحرّكة لأنها كلية وتابعة لكليته
في الغاية وهي الجرم الفلكي.

والطبيعي:

51

فإنها في المكان الطبيعي لها، وإن تحرّكت على
الاستقامة، فإنما أن تمضي بآلا نهاية تتفوت العالم
أو تقف فيهم فوقها في أحد الأماكن وهي منه. وعلى
هذا لو طرحنا حجرًا مما وجب أن يلقي ولا على الاستدارة
لا رحاوية ولا دولبية لأنه يلزم أن يكون الفلك
ساكنًا على ما يقول الإلهي.

والطبيعي: لأن هذا يوجب

ان يكون داخله شيء متحرك عليه وأبدًا ويتفحّك
ولا يلقي الحجر الموضوع الذي يسامح به.

والثالث في سكونها: والإلهي يقول: بالطبع لأنها
تابعة لمبدأ في غايتها ولأنها كلية.

والطبيعي: لأنها في آخر الأماكن، وخيل الناس يحاول ما لا يفسد هـ

وختلف الناس فيه يقوم قالوا: لنصابهها
من ابتدائيه وقوم قالوا
لأنها على الماء وقوم قالوا لأنها على الهواء و
وقد أفسدنا هذه الآراء كلها.

f. 3a

48

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١٥
٤٥
٧٥
٠٦
٣٦
٦٦
٩٦
٢٧

77

وقد أفسدنا هذه الآراء كلها [add. in margin]

٦٤

تأبى [leg.

Ibn al-Tayyib’s Arabic Version and Commentary of Aristotle’s De Caelo 273

Studia graeco-arabica 7 / 2017
We have refuted all these opinions.

Cf. ΙΙ 13, 295 b 10-16 εἰσὶ δὲ τινες οἳ διὰ τὴν ὁμοιότητα φασίν κυτήν μένειν, ὥσπερ τῶν άρχαίων Ἀναξίμανδρος, etc. [v. supra].

Cf. ΙΙ 13, 294 a 28 - b 6 Οἱ δὲ ἐφ’ ὕδατος κεῖσθαι, etc. [v. supra].

The fourth is its being finite, and that its shape is spherical.

<The Metaphysician says:> Because it is following a principle in its final end and in its essence, and so its concomitants, and whatever is of this description, i.e. i its end, is finite. And (further) because it is eternal: the eternal is deprived of principles and ends, and so are its concomitants, among them its shape.²

The Physicist says: Because the form of the dimensions is encompassing the matter. And from the sense-perception (it is clear), since when going a some distance, you will see part of the southern stars you did not see before.

Cf. ΙΙ 14, 297 b 30-34: Ἐτι δὲ διὰ τῆς τῶν ἄστρων φαντασίας οὐ μόνον φανερὸν ὅτι περιφερής, ἀλλὰ καὶ τὸ μέγεθος ὡς ὡσα μεγάλη· μικρὰς γὰρ γιγνομένης μεταστάσεως ήμεῖν πρὸς μεσημβρίαν καὶ ἄρκτον ἐπιδήλῳς ἐτερός γίγνεται ὁ ὀρίζων κύκλος.

And further, because the earth is convex, and convexity goes with the spherical (form).

Cf. ΙΙ 14, 297 b 23-30: Ἐτι δὲ καὶ διὰ τῶν φαινομένων κατά τὴν αἰσθήσειν· οὔτε γὰρ ἂν αἱ τῆς σελήνης ἐκλείψεις τοιαύτας ἂν εἶχον τὰς ἀποτομάς· [...] περὶ δὲ τὰς ἐκλείψεις ἂεὶ κυρτὴν ἔχει τὴν ὀρίζουσαν γραμμήν, ὡστ’ ἐπείπερ ἐκλείπει διὰ τὴν τῆς γῆς ἑπιπρόσθεσιν, ἡ τῆς γῆς ἂν εἰ ἐπαρφέρεια τοῦ σχήματος αἰτία σφαιροειδῆς ὀσά.

End of the lecture, and of the second treatise, as commented upon by the master, the excellent philosopher, Ἀβί l-فارح ʿΑbdallāḥ ibn al-Ṭayyib, may God be pleased with him, in the method of presenting the gist in concise exposition.

To the giver of reason be praise without end
God bless the lord of the prophets, Muḥammad, and his chaste family
He is sufficient for us and the best trustee.

² leg. šakluhā, sc. šakl al-arḍ?
والإلهي يقول: لأنها تابعة لمبدأ في غايتها فذاته ولوازمه، وما هو بهذه الصفة، يعني في غايتها، هو متناهٍ، ولأنها أزليّة تعود المبادئ والغايات، وهكذا لوازمه ومن جملتها شكله.

والطبيعي يقول: لأن صورة الأبعاد محتوية على المادة، ومن الحس من قبل أنك لو سرت يسيرًا لرأيت من الكواكب الجنوبيّة ما لم يكن تراه. ولأن الأرض محدّبة والتحديب مع الكربة.

وينقضي التعليم والمقالة الثانية من كتاب السماء تفسير الشيخ الفيلسوف الفاضل أبي الفرج عبد الله بن الطبيب رضي الله عنه على طريق

الثورة والاختصار.

ولواهب العقل حمدًا بلا نهاية
وصلى الله على سيّد رسوله محمد وآله الطاهرين

وشجعنا ونعم الوكيل

f. 3b

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