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AVICENNA'S INFLUENCE ON MAIMONIDES' "EPISTLE ON ASTROLOGY"

ELON HARVEY
The University of Chicago
Email: elon@uchicago.edu

Abstract. This paper shows for the first time that Maimonides significantly relied on Avicenna's "Refutation of astrology" (*Al-Išāra ilā fasād ʿilm aḥkām al-nujūm*) when composing his own refutation, the "Epistle on astrology" (*ʿAl Gezērat ha-kōkhabīm*). Maimonides consulted a copy of Avicenna's Refutation, partially using its structure as a model for his Epistle, and adapting some of its arguments. Therefore, it may be said with certainty that Maimonides carefully read at least one of Avicenna's works, and that his Epistle is not based solely on his own previous works, the "Commentary on the Mishnah", the "Code of Jewish law", and the "Guide of the perplexed".

Résumé. Cet article montre pour la première fois que Maïmonide s'est appuyé de manière significative sur la « Réfutation de l'astrologie » d'Avicenne (*Al-Išāra ilā fasād ʿilm aḥkām al-nujūm*) pour composer sa propre réfutation, la « Lettre sur l'astrologie » (*ʿAl Gezērat ha-kōkhabīm*). Maïmonide a consulté une copie de la Réfutation d'Avicenne, en utilisant sa structure comme modèle partiel pour sa lettre et en adaptant certains de ses arguments. Par conséquent, on peut dire avec certitude que Maïmonide a lu attentivement au moins une des œuvres d'Avicenne et que sa lettre ne se base pas uniquement sur ses propres œuvres antérieures, le « Commentaire sur la Mishnah », le « Code de la loi juive » et le « Guide des égarés ».

In this paper, I discuss the influence of Avicenna (Ibn Sīnā, 980-1037) on Maimonides (1138-1204). In particular, I shall examine the influence of Avicenna's "Refutation of astrology" (*Al-Išāra ilā fasād ʿilm aḥkām al-nujūm* [1]) on Maimonides' refutation, the "Epistle on astrology" (*ʿAl Gezērat ha-kōkhabīm* [2]). To the best of my knowledge, the connection presented here between the two refutations has never previously been mentioned. I will show that Avicenna's refutation was a significant source of inspiration for Maimonides' Epistle, commonly considered a work which he composed drawing primarily on his earlier writings. I will expose the manner in which Maimonides built upon Avicenna's

[1] Avicenna, *Réfutation de l'astrologie*, ed. and transl. Yahya Michot (Beirut: Albouraq, 2006), Arabic text, p. 1-44 (the numbering is reversed); French translation, p. 47-150.

[2] Maimonides, *Iggerot ha-rambam*, ed. Isaac Shailat (Maaleh Adumim: Maaliyot, 1995), p. 478-90. English translation: Ralph Lerner, *Maimonides' Empire of light* (Chicago: University of Chicago Press, 2000), p. 178-87. Quotations follow Lerner, unless noted otherwise.

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composition while deviating from it and reshaping it to fit his own purposes. As a result of this inquiry, a better understanding of Maimonides' relationship to Avicenna will be gained.

It is known from his 1199 letter to Samuel ibn Tibbon that Maimonides was acquainted to some degree with the writings of Avicenna. He found them useful (*mōʿīlīm*) and worthy of study, but considered them somewhat inferior to those of al-Fārābī, Ibn Bājja, and Averroes[3]. Aside from this letter, Maimonides rarely cites Avicenna by name. Nonetheless, it has been shown that Avicenna influenced certain aspects of Maimonides' philosophy[4]. There is however some debate about the nature and extent of this influence. Gad Freudenthal and Mauro Zonta have argued that "Maimonides apparently did not read any work by [Avicenna] (or at least no major work)", and that "he contented himself, as it seems, with the 'digest' of Avicenna's doctrines offered by al-Ghazālī" in his "Intentions of the philosophers"[5]. Steven Harvey responded to these assertions citing several studies on Avicenna and Maimonides in which "evidence is brought forward that Maimonides likely read not only some of Avicenna's main works, but also smaller works such as his 'Treatise on love', 'Epistle on the quiddity of prayer', books on the afterlife, and […] one of his treatises entitled *Maʿād*[6]." The present paper's purpose is to add another piece of evidence by showing that Maimonides read Avicenna's "Refutation of astrology". Freudenthal has claimed that Maimonides' rejection of astrology is in line with the views of Peripatetic Arabic philosophers like al-Fārābī and Avicenna[7]. However, he

[3] Maimonides, *Iggerot ha-rambam*, p. 553-54. The letter, written in Arabic, survives in different medieval Hebrew translations, and in fragments of the original. The reference to Avicenna is not preserved in the Arabic fragments. For the date, see Gad Freudenthal and Mauro Zonta, "Avicenna among medieval Jews: The reception of Avicenna's philosophical, scientific and medical writings in Jewish cultures, East and West", *Arabic sciences and philosophy*, 22/2 (2012): 217-287; on. p. 222.

[4] For a summary of Avicenna's influence on Maimonides' thought, see Steven Harvey, "Avicenna's influence on Jewish thought: Some reflections", in Y. Tzvi Langermann (ed.), *Avicenna and his legacy: A golden age of science and philosophy* (Turnhout: Brepols 2009): 327-40; on p. 333-335; and Freudenthal and Zonta, "Avicenna among medieval Jews", p. 223-28.

[5] Freudenthal and Zonta, "Avicenna among medieval Jews", p. 223-28.

[6] Steven Harvey, "Some notes on 'Avicenna among medieval jews'", *Arabic sciences and philosophy*, 25/2 (2015): 249-77; on p. 253-56.

[7] Gad Freudenthal, "Maimonides' stance on astrology in context: Cosmology, physics, medicine, and providence", in *Moses Maimonides: Physician, scientist, and philosopher*, ed. F. Rosner and S. S. Kottek (Northvale NJ and London: Jason Aronson, 1993), 77-90, 244-249; on p. 87.

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does not assert that Maimonides read Avicenna's Refutation or was influenced by him directly. Sarah Stroumsa has argued that Avicenna's Refutation could have influenced Maimonides' use of the term *hadhayān* ("ravings") in the "Guide of the perplexed"[8]. I will show that the Refutation significantly influenced the structure and contents of Maimonides' "Epistle on astrology".

Maimonides wrote his "Epistle on astrology" in Fustat in the year 1194 or 1195 in response to a query sent to him from a community in Provence[9]. In the Epistle, written in Hebrew, he refers to three of his previous works, the Arabic "Commentary on the Mishnah", the Hebrew "Code of Jewish law" (*Mishne tōra*), and the Arabic "Guide of the perplexed" (*Dalālat al-ḥā'irīn*), as having already adequately addressed the subjects discussed in the Epistle[10]. Maimonides claims that he was very busy and would not have written the Epistle had it not been for a messenger from rabbi Phinehas ben Meshullam who persistently insisted that he write it. Commenting on Maimonides' claim that he had to be forced to write this supposedly redundant epistle, Ralph Lerner argued that "neither addressees, themes, nor circumstances were such as to excite great new efforts" from him[11]. Lerner thus considered the "Epistle on astrology" to be derived mostly from Maimonides' previous works.

Maimonides also relied on other sources in composing the Epistle. He claims in its introduction that he has studied extensively the works of the astrologers and other idolaters. He writes: "It seems to me there does not remain in the world a compilation on this subject [of idolatry], having been translated into Arabic from other languages, but that I have read it… and plumbed the depths of its thought[12]." Stroumsa has understood this statement by Maimonides as referring at least in part to pagan literature, treatises written by astrologers and idolaters, particularly those attributed to the so-called Sabians[13]. It stands to reason, though, that if Maimonides read every book on these matters, he also

[8] Sarah Stroumsa, *Maimonides in his world: Portrait of a Mediterranean thinker* (Princeton: Princeton University Press, 2009), p. 145-47.

[9] See Shailat's introduction to the letter in Maimonides, *Iggerot ha-rambam*, p. 474. The work is addressed to "the sages of Montpellier", but some manuscripts read "Marseille". Their letter is presented and discussed in depth by Shlomo Sela, "Queries on astrology sent from southern France to Maimonides: Critical edition of the Hebrew text, translation, and commentary", *Aleph*, 4 (2004): 89-190.

[10] Maimonides, *Iggerot ha-rambam*, p. 478, 481, 483, and 486.

[11] Ralph Lerner, "Maimonides' Letter on astrology", in *History of religions* 8/2 (1968): 143-158; on p. 143-44.

[12] Maimonides, *Iggerot ha-rambam*, p. 480-81; Lerner, *Empire*, p. 180.

[13] Stroumsa, *Maimonides in his world*, p. 101, 140-41.

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read Avicenna's "Refutation of astrology", assuming its availability.

The connection between Avicenna's Refutation and Maimonides' Epistle is not obvious at first glance, since their main arguments against astrology are strikingly different. Avicenna divides his main argument into two parts: (i) a refutation of astrology's fundamental principles and what has been established upon them by the astrologers (*al-uṣūl al-latī waḍaʿūhā [wa-mā] banawʿalayhā*), and (ii) an explanation of the total impossibility of attaining the knowledge which is said to be attained by astrology (*bayān imtināʿ idrāk hādhā al-ʿilm wal-wuṣūl ilayhi bi-wajh mina al-wujūh*[14]). The core claims of each part of the argument are as follows. (i) In the longer first part, Avicenna explains that astrology's fundamental principles are arbitrary, and do not rely on anything that can be confirmed by reason or facts[15]. (ii) In the shorter second part, he explains that while God does have some sort of influence upon us through the heavenly bodies, it is impossible to understand this influence and to make predictions on its basis. Its comprehension is beyond a human being's ability, for our knowledge of the universe and its workings is extremely incomplete[16].

Unlike Avicenna, Maimonides does not explicitly divide his argument into parts. He does not attempt to debunk any of what Avicenna would refer to as astrology's "fundamental principles". Instead he focuses on only one claim of astrology, namely, that human events are determined by the heavenly bodies. I shall summarize briefly his main argument: There is free choice, for God gave us commandments and the free choice to adhere to them. While God does have some sort of influence upon us through the heavenly bodies, this influence is not predetermined as this would imply a lack of free choice. Therefore, it is impossible to predict this influence by any means, astrology included. Furthermore, the comprehension of God's judgement is beyond human ken, for God works in mysterious ways (*ve-ēn anū yōdʿīn sōf ḥokhmato shel Ha-qadōsh barūkh hūʾ*[17]).

[14] Avicenna, *Réfutation*, p. 7; translation, p. 61.

[15] Avicenna, *Réfutation*, p. 7-35; translation, p. 61-131. On p. 26-27; translation, p. 109, Avicenna mentions in passing that the Qurʾān and the *aḥādīṯ* contradict astrology.

[16] Avicenna, *Réfutation*, p. 36-44; translation, p. 131-150.

[17] Maimonides, *Iggerot ha-rambam*, p. 484-87. Lerner, *Empire*, p. 182-85. Maimonides appears to move away from the scientific argument against astrology, which he offered in his *Commentary on the Mishnah*, ʿAbōda Zarah, 4.7. See Maimonides, *Masekhet ʿaboda zara ʿim perush ha-rambam*, ed. Dror Fixler (Maaleh Adumim: Maaliyot, 2002), p. 131-132. This argument is based on the assumption that the celestial sphere (*al-falak*) is a single homogeneous body having no components. Therefore, it is impossible that in such a body there will be, as claim the astrologists, one star that is beneficent and one that is maleficent, or that a section of the sphere will be in harmony with one star but not with another. Regarding

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Maimonides' main argument is very different from Avicenna's. Despite sharing a common admission that God influences what happens on Earth through the stars, they differ as to why it is impossible to understand this influence. Avicenna emphasizes the human being's incapacity to understand the universe. Maimonides emphasizes the contradiction between free choice and the predetermination inherent in astrology, and notes our incapacity to understand God's ways. Although Maimonides does not appear to follow Avicenna's main concepts, there are many discernable threads that connect their refutations. Certain points in Maimonides' argument correspond to points mentioned by Avicenna. What is more, they sometimes correspond not just in their content but also in the order in which they appear in each refutation (see Table p. 183 *infra*). I shall present these points according to their order of appearance in Maimonides' Epistle. I will note after each point where the corresponding point appears in Avicenna's Refutation. This will demonstrate the similar structure of both works.

1. EPISTEMOLOGICAL PROLOGUE

Maimonides begins his argument with an epistemological prologue. He distinguishes in it between two types of knowledge: (i) trustworthy knowledge, and (ii) untrustworthy knowledge. He divides trustworthy knowledge into three categories:

– knowledge attained by reason, *e. g.* arithmetic, geometry (*ḥeshbōn vege'amatri'ōt*), and astronomy;

– knowledge attained through the five senses;

– knowledge handed down from the prophets (*nebī'īm*) and the righteous (*ṣaddīqīm*).

As for all other purported knowledge, *i. e.* untrustworthy knowledge or "nonsense", the person who believes it is a "fool who will believe anything" (Proverbs 14:15) [18].

Maimonides distinguishes between trustworthy and untrustworthy knowledge in order to establish that astrology belongs to the latter category, and to warn that

the scientific argument, see Y. Tzvi Langermann, "Maimonides' repudiation of astrology", *Maimonidean studies*, 2 (1991): 123-158, on p. 131 *sqq.*; reprinted in *Maimonides and the sciences*, ed. Robert S. Cohen and Hillel Levine (Dordrecht, 2000), p. 131-157, on p. 136 *sqq.* Maimonides' arguments against astrology (*qaḍāyā al-nujūm*) in the *Commentary* do not appear to be influenced by the arguments in Avicenna's refutation against astrology (*aḥkām al-nujūm*).

[18] Maimonides, *Iggerot ha-rambam*, p. 479; Lerner, *Empire*, p. 179.

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people throughout history have mistakenly placed it in the former category [19].

Avicenna similarly opens his refutation with an epistemological prologue. He divides knowledge that one should not bother to refute into two categories:

(i) Obvious knowledge, like intuitive knowledge, *e. g.* that the whole is greater than the part, or that if two things are equal to the same thing then they are equal, etc. Very similar to this type of knowledge is slightly less evident knowledge, *i. e.* knowledge that can be confirmed on the basis of analogy (*qiyās*), clear demonstration (*burhān*), and basic premises (*al-muqadimmāt al-awwaliyya*), *e. g.* geometrical or arithmetical matters (*al-masā'il al-handasiyya wal-'adadiyya*). In order to illustrate this, Avicenna gives an example of a foolish *mutakallim* who could not understand the distinction between *nuqṭa* (a geometric point), and *nuqṭa* (a dot). While the former is indivisible according to the geometers, the latter is divisible.

(ii) Completely nonsensical knowledge, *e. g.* magic tricks (*'ilm al-nīranjāt*), scapulimancy (*'ilm al-aktāf*), palmomancy (*al-ikhtilāj*), astrology, etc. [20]

Avicenna distinguishes between obvious knowledge and completely nonsensical knowledge in order to explain why nobody has bothered to write a refutation of astrology [21].

The epistemological prologues in both refutations may seem unrelated at first, but upon closer inspection, some noteworthy similarities become apparent. Both prologues comprise basic statements about knowledge in general, which are presented as a framework for the subsequent discussion of astrology. Both explicitly include geometry and arithmetic as types of knowledge which cannot be refuted. Both distinguish between two types of knowledge, the second of which is nonsensical knowledge under which astrology must be classified. Maimonides'

[19] Maimonides, *Iggerot ha-rambam*, p. 479-81; Lerner, *Empire*, p. 179-80.

[20] Avicenna, *Réfutation*, p. 1-3; translation, p. 47-52.

[21] Avicenna, *Réfutation*, p. 3-4; translation, p. 53-54. Michot remarks that Avicenna's claim about the absence of refutations is a cavalier one, and cites counterexamples; see p. 53, n. 1. Maimonides appears to disagree with Avicenna's bold claim about the absence of refutations of astrology. He notes that the Greek wise men did not busy themselves with astrology, nor did they compose any astrological works, rather they mocked those nations who believingly composed works in that field. He adds that the Greeks also "laid down clear refutations" (*'ōrkhīn re'ayōt berūrōt*) of the claims of those nations. See Maimonides, *Iggerot ha-rambam*, p. 481-82; Lerner, *Empire*, p. 180. If laying down clear refutations is a reference to composing written works, then Maimonides is in disagreement with Avicenna who claimed that such works do not exist. He does however appear to agree with a statement that Avicenna makes later on in his Refutation, namely, that Ptolemy did not write the astrological works attributed to him, and that if he did, he did not do so in earnest. See Avicenna, *Réfutation*, p. 15-16; translation, p. 78-82.

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statement appears to be an elaboration and repurposing of Avicenna's. He was not content with limiting trustworthy knowledge merely to apodictic knowledge attained by reason, as that would leave sense perception and reliable testimony, including God's revelation, as untrustworthy sources of knowledge.

2. THE PROPHETS AND THE RIGHTEOUS

Maimonides, in the abovementioned passage, mentions the prophets (*nebī'īm*) and the righteous (*ṣaddīqīm*) as the only people from whom trustworthy knowledge should be attained without question. Avicenna remarks elsewhere in his Refutation that, of all mankind, only a prophet (*nabī mursal*) and a righteous man (*walī min awliyā' Allāh ṣiddīq*) can attain true visions of the future, through revelations or veridical dreams [22]. This passage in Avicenna's Refutation may well have influenced Maimonides to include such a reference to the prophets and the righteous in his Epistle.

3. A COMMENT ABOUT BOOKS AND KNOWLEDGE

After his epistemological prologue, Maimonides proceeds to explain that the existence of much literature about a subject is not an indication that that subject (*e. g.* astrology) is true [23]. Avicenna follows up his epistemological prologue by saying that absence of literature refuting a certain subject (*e. g.* astrology) is not an indication that that subject is true [24]. It is remarkable that both Avicenna and Maimonides follow up their epistemological prologues with a comment about the wrong impression that one can get from the absence or existence of literature on a certain topic. Having read many books on the subject, Maimonides would have likely been familiar with some works devoted to refuting astrology, including Avicenna's. He therefore would not claim that there are no such works.

4. THE HARMFUL NATURE OF ASTROLOGY

Maimonides then describes the damaging nature of astrology. He relates that the first Jewish kingdom was lost, the Temple destroyed, and the Jews exiled

[22] Avicenna, *Réfutation*, p. 6-7; translation, 59-60.
[23] Maimonides, *Iggerot ha-rambam*, p. 479-480; Lerner, *Empire*, p. 179.
[24] Avicenna, *Réfutation*, p. 3-4; translation, p. 53-54.

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on account of astrology. The ancient Jews, he explains, found many idolatrous books on astrology, and mistakenly thought they contained an illustrious science capable of bringing much utility. Thus, "they neglected the study of the arts of war and conquest of other lands, imagining that [astrology] would help them [25]."

Avicenna, after talking about the absence of literature refuting astrology, says that he decided to write a refutation of it due to a request from a friend. He states that human beings have an aversion to hard work and a tendency towards imaginary shortcuts and taking the easy way. He explains that people often dream about suddenly getting large sums of money but do not want to work for such riches. As large sums of money are generally hard to come by, people have sought alternative routes, like the putative science of alchemy. Likewise, people who dreamt of visiting faraway places invented the gryphon (*ʿanqāʾ mughrib*), and people who wanted to know the future invented astrology [26].

There is a common thread connecting Maimonides' tale of astrology's destructive influence on the ancient Jews and Avicenna's description of astrology as a shortcut to success. Maimonides upbraids the ancient Jews for wasting their time on astrology instead of cultivating their political and martial skills. He in effect accuses them of following an imaginary shortcut to success instead of working hard in order to overcome real problems in a rational way. He has applied Avicenna's universal statement to the particular example of the ancient Jews.

5. THE IMPOSSIBILITY OF ASTROLOGY

A few passages later, Maimonides writes that all of astrology's assertions "namely, that something will happen one way and not another, and that a person's time of birth will draw him on so that he will be of such and such a kind and so that something will happen to him one way and not another [...] are far from being scientific; they are stupidity". Maimonides claims that he has "lucid, faultless proofs refuting all the roots of those assertions (*kol ʿiqqarē ōtan hadebarīm*)". However, he warns his readers: "Do not imagine that there is no proof [in support of astrology's assertions], and that therefore we do not believe in them! Rather, there is very clear and incontestable evidence that completely refutes them [27]." Here Maimonides states that not only is there no evidence *for*

[25] Maimonides, *Iggerot ha-rambam*, p. 480; Lerner, *Empire*, p. 179-80. My translation inspired by Lerner.

[26] Avicenna, *Réfutation*, p. 4-7; translation, p. 55-61.

[27] Maimonides, *Iggerot ha-rambam*, p. 481-82; Lerner, *Empire*, p. 180. Lerner's translation is

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astrology, there is plenty of evidence *against* it. Therefore, he will not bother showing that astrology is unprovable, because he can actually prove that it cannot be true, that it is an impossibility.

Maimonides' declaration that he will focus on the impossibility of astrology should be read as being in dialogue with Avicenna's previously mentioned division of his refutation into two parts: (i) a refutation of astrology's fundamentals and what has been established upon them, and (ii) an explanation of why it is impossible to attain the knowledge which is said to be attained by astrology [28]. Avicenna's division is mentioned right after his description of people's tendency towards seeking imaginary shortcuts in life. Thus, the position of the division within Avicenna's argument roughly corresponds with the position of Maimonides' declaration within his argument. Maimonides has no need for the first part of Avicenna's refutation, as the second one gets the job done. Moreover, the first part is longer and more intricate than the second part. Given Maimonides' desire to be brief, his decision to ignore the first part is understandable [29].

6. ASTRONOMY

After his declaration about the impossibility of astrology, Maimonides devotes a paragraph to clarify that astronomy is a real science and that it should not be confused with astrology which is a sham science. He says that the Greeks, Persians, and Indians composed great works on astronomy. He gives several examples of exact knowledge that is attained by this science (*e. g.* the knowledge of when there will be an eclipse) [30]. Towards the end of the refutation of the "fundamental principles", Avicenna also clarifies the difference between the real science, astronomy, and the fake one, astrology. He mentions the *Almagest* as a great work composed in this field. He gives one example of exact knowledge that is attained by astronomy (*e. g.* the knowledge of when there will be an eclipse) [31]. Even though Maimonides is not interested in the "fundamental

corrected.

[28] Avicenna, *Réfutation*, p. 7; translation, p. 61.

[29] Gad Freudenthal has offered several reasons why Maimoinides did not deem it necessary to take up a theoretical discussion of astrology in any of his writings. See Freudenthal, "Maimonides' stance on astrology in context", p. 87-88.

[30] Maimonides, *Iggerot ha-rambam*, p. 482; Lerner, *Empire*, p. 181.

[31] Avicenna, *Réfutation*, p. 27; translation, p. 110-111. In another passage, Avicenna divides the science of the stars (*ʿilm al-nujūm*) into three categories: (i) accurate knowledge, like

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principles", he did not completely skip over this section of Avicenna's refutation. Finding there an argument that suited his needs, he inserted it into his own refutation.

7. GOD INFLUENCES THE TERRESTRIAL WORLD THROUGH THE HEAVENLY SPHERES

Maimonides goes on to enumerate three groups of philosophers with differing opinions regarding whether the world is created [32]. Afterwards he describes the manner by which God influences the world through the heavenly bodies. He says that all three groups of philosophers agree on this point, that everything that happens in this lower world (*kol mā she-yihyē be-zeh ha-ʿōlam ha-taḥtōn*), from animals, to trees, to plants, to minerals, is done by God with a power that comes from the spheres and stars; that God's power flows to the spheres and stars, and from the spheres and stars it flows and spreads over this world. He adds: "Just as we say that God performs miracles and wonders through angels, so do the philosophers say that all of these occurrences in the nature of the world at any time, occur through the spheres and stars. They say that the spheres and stars have souls and knowledge [*nefesh u-maddaʿ*]." Maimonides adds: "All these things are true. I myself have already made it clear, with proofs (*reʾayōt*)… There is no controversy whatever between the sages of Israel and the philosophers on these matters, as I have made clear in those chapters [in the 'Guide of the perplexed'] [33]."

Avicenna begins his refutation of the impossibility of astrology with a similar description: The scientists (*ahl al-ʿilm*) agree that everything that happens and perishes in this lower world (*jamīʿ mā yakūnu wa-yafsudu fī hādha al-ʿālam al-suflī*), small and great, is connected with the movements of the stars and spheres. The stars and spheres are moved by the heavenly angels (*al-malāʾika al-samāwiyya*), who are termed by certain scientists "souls" (*nufūs*). The souls are

that attained through astronomy (*ʿilm al-hayʾa*) and found in the *Almagest*; (ii) less accurate knowledge, like that attained using an astronomical handbook (*al-zīj*); and (iii) astrology, which is nonsense. See p. 34-35; translation, p. 125-127. Maimonides does not appear to have incorporated this division into his Epistle.

[32] Maimonides, *Iggerot ha-rambam*, p. 482-83; Lerner, *Empire*, p. 181-82.

[33] Maimonides, *Iggerot ha-rambam*, p. 484; Lerner, *Empire*, p. 182-183. My translation inspired by Lerner. Maimonides discusses the heavenly spheres in the "Guide of the perplexed" 1.72, and 2.3-7: see Maimonides, *Dalālat al-ḥāʾirīn*, ed. Salomon Munk and Issachor Ioel (Jerusalem: Azrieli, 1929), p. 127-134, and p. 177-185.

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moved by the cherubs (*al-malā'ika al-karūbiyyūn*) who are termed "intellects" (*'uqūl*). The cherubs are moved by God, who is the cause of all of these causes. Avicenna adds: "This matter is explained with clear demonstrations (*mubarhana*) elsewhere [in another work] whence it can be [better] learned [34]."

The striking similarity between Maimonides' and Avicenna's descriptions of God's influence through the heavenly bodies leaves no room for doubt that Maimonides was reading Avicenna when composing his refutation. Maimonides adapted this passage from Avicenna at times veering close to direct translation (*e. g.*, *kol mā she-yihyē be-zeh ha-'ōlam ha-taḥtōn*, vs *jamī' mā yakūnu […] fī hādha al-'ālam al-suflī*). What is more, Avicenna's referral to one of his own works may have inspired Maimonides to include a referral to his own "Guide of the perplexed". In some instances, Maimonides deviated from the text he had before him, assuming he had a text similar to ours, and expanded on it (*e. g.* "from animals, to trees, to plants, to minerals" vs "small and great").

8. TEXTS SHOULD NOT ALWAYS BE TAKEN AT FACE VALUE

Towards the end of his refutation, Maimonides tells his readers not to take at face value passages in the Talmud and Midrash in which the sages seemingly support or practice astrology: It is unacceptable to ignore verified truths in favor of the saying of one sage or another. It is possible that the sage did not have all of the details, or that there is some hidden meaning behind his words, or that they were said in a particular circumstance. Even some verses of the Torah should not be understood *prima facie* [35]. Maimonides' words here were probably influenced by a similar passage in which Avicenna responds to an interlocutor favoring astrology. His interlocutor had suggested that since Ptolemy, the famed author of *Almagest*, composed two works on astrology, the *Tetrabiblos* and *Karpos*, then astrology must be a real science. Avicenna replies that the person who wrote them may have been some other Ptolemy, that is, a pseudo-Ptolemy. Alternatively, he suggests that Ptolemy may have had an ulterior motive to write the books, or that perhaps he wrote them under duress [36]. Both Avicenna and Mai-

[34] Avicenna, *Réfutation*, p. 36-37; translation, p. 131-134. Michot provides an example for Avicenna's reference to his own work. See p. 134, n. 2.

[35] Maimonides, *Iggerot ha-rambam*, p. 488; Lerner, *Empire*, p. 185-86.

[36] Avicenna, *Réfutation*, p. 15-16; translation, p. 78-82. For the *Tetrabiblos* (or *Apotelesmatika*) and *Karpos* (or *Centiloquium*), see Michot's comments on p. 78-79, n. 1 and n. 2. See also "Ἀποτελεσματικά", ed. W. Hübner, in Ptolemy, *Opera quae exstant omnia* (Teubner), vol. III.1 (Stuttgart, 1998); and "Καρπός: Pseudo-Ptolemaei Fructus sive Centiloquium", ed. E. Boer, *ibid.*, vol. III.2 (Leipzig, 1961).

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monides warn the reader to not take a text at face value, as it may have been composed under special unknown circumstances. Maimonides replaces the secular example of Ptolemy with the example of the sages. He thus adapts Avicenna's text for a Jewish audience, providing a needed explanation for certain problematic rabbinic data.

9. CONCLUSION

It is, I think, manifest that Maimonides relied in a general way on Avicenna's "Refutation of astrology" when composing his own refutation, the "Epistle on astrology". It seems, moreover, likely that Maimonides even consulted a copy of Avicenna's work while writing it. Having been tasked unwillingly to write a refutation on astrology and being pressed for time, Maimonides turned to a copy of Avicenna's refutation using it as a template. This would have likely saved him much time, instead of having to come up with a completely new work. He roughly replicated the Refutation's structure and incorporated elements from it which he found beneficial to his argument. However, he did not blindly adapt it. He expanded elements which he thought needed expanding, and he omitted elements which he thought were redundant or unconvincing. Ultimately, he composed a work which was very much in line with his own philosophy and religion.

Maimonides does not mention Avicenna by name in the Epistle, nor does he give his readers any indication that he is relying on a particular author. His readers did not know Arabic and the reference to Avicenna would likely not have been very helpful to them.

This paper has contributed in some small measure toward clarifying the controversial question of the extent of Maimonides' knowledge of Avicenna. We can say with confidence that Maimonides was well acquainted with at least one minor work of Avicenna's. Regarding his opinion of Avicenna's philosophical refutation of astrology, we may say that Maimonides admired Avicenna's compositional style and some of his minor arguments more than he admired his explanation for the impossibility of astrology. He definitely found his refutation useful (*mōʿīl*).

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Avicenna's "Refutation of astrology"	Maimonides' "Epistle on astrology"
Beginning… (p. 1)	Beginning… (p. 478)
I. An epistemological prologue (p. 1-3)	I. An epistemological prologue (p. 479)
II. A comment about books and knowledge (p. 3-4)	IV. The prophets and the righteous have true knowledge p. 479
III. The harmful nature of sham sciences (p. 4-7)	II. A comment about books and knowledge (p. 479-480)
IV. The prophets and the righteous have true knowledge (p. 6-7)	III. The harmful nature of astrology (p. 480)
V. First astrology's specifics will be debunked, then its impossibility will be shown, p. 7	V. No need to debunk first astrology's specifics, as its impossibility will be shown (p. 481-482)
VI. Ptolemy must have had a good reason for composing works seemingly in favor of astrology (p. 15-16)	VII. Astronomy is the real science (p. 482)
VII. Astronomy is the real science (p. 27)	VIII. God influences the world through the spheres (p. 484)
VIII. God influences the world through the spheres (p. 36-37)	VI. The sages must have had a good reason for speaking seemingly in favor of astrology (p. 488)
… End (p. 44)	… End (p. 490)

TABLE. A side-by-side comparison of the main corresponding elements in Avicenna's and Maimonides' refutations of astrology. Each element is marked with a Roman numeral. Notice that Maimonides mostly adhered to the order of Avicenna's treatise.

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