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The Doctrine of Material and Formal
Causality in the «*Ilāhiyyāt*»
of Avicenna's «*Kitāb al-Šifā'*»*

The *Kitāb al-Šifā'* (*Book of the Cure*) is commonly acknowledged as the most important philosophical *summa* by Avicenna (before 980-1037 C.E.). Consequently, the section of the *Šifā'* dealing with metaphysics, the *Ilāhiyyāt* (*Science of Divine Things*)¹, can be regarded as the fullest expression of Avicenna's metaphysical thought². In the Prologue of the *Šifā'* Avicenna states that this work, in

* I wish to thank Prof. Dimitri Gutas (Yale University), Prof. Robert Wisnovsky (Harvard University) and Prof. Francesco Del Punta (Scuola Normale Superiore of Pisa) for their insightful observations and valuable remarks. My gratitude goes also to Kirsten Wolf (University of Mainz) for her careful reading of a first draft of the present article. I am solely responsible for its remaining flaws.

¹ IBN SĪNĀ, *Al-Šifā'. Al-Ilāhiyyāt (1)*, ed. G.C. Anawati / S. Zayed, Organisation générale des Imprimeries gouvernementales, Cairo 1960; IBN SĪNĀ, *Al-Šifā'. Al-Ilāhiyyāt (2)* ed. M.Y. Moussa / S. Dunya / S. Zayed, Organisation générale des Imprimeries gouvernementales, Cairo 1960. Unless otherwise noted, all the quotations from Avicenna in the present contribution are taken from the *Ilāhiyyāt*, according to pages and lines of this edition (= c). Numbers between square brackets following a quotation of the *Ilāhiyyāt* refer to pages and lines of the critical edition of its Latin Medieval translation (AVICENNA LATINUS, *Liber de Philosophia prima sive Scientia divina, I-IV*, ed. S. Van Riet, Peeters, Louvain-Brill, Leiden 1977; AVICENNA LATINUS, *Liber de Philosophia prima sive Scientia divina, V-X*, ed. S. Van Riet, Peeters, Louvain-Brill, Leiden 1980; AVICENNA LATINUS, *Liber de Philosophia prima sive Scientia divina, I-X. Lexiques*, cur. S. Van Riet, Peeters, Louvain-Brill, Leiden 1983 = lat). I have checked the text of c against ms. Oxford, Poccoke 110 (= P110), ms. Oxford, Poccoke 117 (= P117), ms. Oxford, Poccoke 125 (= P125), ms. Leiden, Or. 4 (= L) and the Tehran lithograph (= T). P110, P117, P125, L and lat are not taken into account in c, whereas T is faultily reported in the apparatus (I wish to thank Prof. J.L. Janssens for having kindly put at my disposal a photostatic reproduction of T). An integral French translation of c is available in AVICENNE, *La Métaphysique du Šifā'*. Livres I à V. Traduction, introduction, notes et commentaires par G.C. Anawati, Vrin, Paris 1978; AVICENNE, *La Métaphysique du Šifā'. Livres de VI à X*. Traduction, introduction, notes et commentaires par G.C. Anawati, Vrin, Paris 1985. The first volume of Anawati's translation contains a very provisional list of corrections of c (22-24). M. Horten's German translation (*Die Metaphysik Avicennas enthaltend die Metaphysik, Theologie, Kosmologie und Ethik*, transl. M. Horten, Rudolf Haupt, Leipzig 1907, repr. Institute for the History of Arabic-Islamic Science at the Johann Wolfgang Goethe University, Frankfurt am Main 1960) is based on a manuscript tradition (including L) different from that on which c relies. In the recent Italian translation – AVICENNA (IBN SĪNĀ), *Metafisica. La Scienza delle cose divine (al-Ilāhiyyāt) dal Libro della Guarigione (Kitāb al-Šifā')*, a cura di O. Lizzini e P. Porro, Bompiani, Milano 2002 – c is compared with the edition by Ḥ. al-Āmulī, Tehran 1997/8.

² It would be interesting to compare the *Ilāhiyyāt* of the *Šifā'* with the metaphysical section of another

general, belongs to the Peripatetic tradition, and that the *Ilāhiyyāt*, in particular, contains “the science related to [Aristotle’s] *Metaphysics*”³. Of the *Metaphysics* the *Ilāhiyyāt* is a reworking, even though neither a commentary, nor a paraphrase in the sense commonly associated with this term. Given the importance of the doctrine of causality in Aristotle’s *Metaphysics*, it is not surprising that this doctrine is a key topic also of Avicenna’s work. Despite its originality with regard to Aristotle, its intrinsic relevance, and the deep impact it exerted on subsequent thinkers, Avicenna’s doctrine of causality in the *Ilāhiyyāt* has not been thoroughly investigated so far. The present article takes into account, as comprehensively as possible, Avicenna’s treatment in the *Ilāhiyyāt* of two of the four causes that Aristotle envisages, namely the material and the formal. The way according to which Avicenna approaches the other two causes (the moving/efficient and the final) will be analyzed by R. Wisnovsky in this very same volume.

Scholarship on Avicenna’s doctrine of material and formal causality is still at its first steps. This situation is the joint result of the fact that Avicenna’s conception of matter and form has been studied mainly outside the context of causality, and, conversely, that the study of his theory of the four causes has focused on efficient and final, rather than material and formal, causality. I will now briefly describe these two trends of previous research.

There are several studies devoted to matter and form in Avicenna’s *Ilāhiyyāt*, but in none of them matter and form are taken into account *as causes*. An overview of Avicenna’s doctrine of matter, for example, has been provided⁴, and

summa by Avicenna, *al-Ḥikma al-mašriqiyya* (*Eastern Philosophy*) or *Al-Mašriqiyyūn* (*The Easterners*), a work in which Avicenna declares to assume a more openly critical attitude towards the Peripatetic tradition than in the *Šifā’*; unfortunately the metaphysical section of the *Ḥikma mašriqiyya* is not preserved. On this work, and the issue of Avicenna’s supposed “Oriental” – i.e. mystical and illuminative – philosophy, see D. GUTAS, *Avicenna and the Aristotelian Tradition. Introduction to Reading Avicenna’s Philosophical Works*, Brill, Leiden-New York-København-Köln 1988, 115-130; Id., *Avicenna’s Eastern (“Oriental”) Philosophy. Nature, Contents, Transmission*, «Arabic Sciences and Philosophy», 10 (2000), 159-180.

³ IBN SĪNĀ, *Al-Šifā’*, *al-Mantiq. 1. Al-Madḥal*, ed. M. el-Khdeiri / A.F. el-Ehwani / G.C. Anawati, Organisation générale des Imprimeries gouvernementales Cairo 1952, 9-11 (English annotated translation in GUTAS, *Avicenna ...*, 49-54). In the Prologue to the *Šifā’* Avicenna says that this work is “more accommodating to my Peripatetic colleagues” than the *Ḥikma mašriqiyya* (10, 14). The same point is alluded to in the Introduction to the *Ḥikma mašriqiyya* (English translation in Gutas, *Avicenna ...*, 43-49). The passage of the Prologue I quote (*al-‘ilm al-mansūb ilā mā ba‘da l-tabi‘a*) occurs at 11, 11. For the Latin reception of Avicenna’s Prologue to the *Šifā’* see A. BERTOLACCI, *Albert The Great and The Preface of Avicenna’s Kitāb al-Šifā’*, in J. JANSSENS / D. DE SMET (ed. by), *Avicenna and His Heritage*. Acts of the International Colloquium, Leuven-Louvain-la-Neuve September 8-September 11, 1999, Leuven University Press, Leuven 2002, 131-152.

⁴ See E. BUSCHMANN, *Untersuchungen zum Problem der Materie bei Avicenna*, Lang, Frankfurt a. M.-Bern-Las Vegas, 1979. I do not discuss the interpretation of Avicenna’s doctrine of matter proposed by E. BLOCH, *Avicenna und die Aristotelische Linke*, Suhrkamp Verlag, Berlin 1952, 1963². Bloch’s position has recently been shown as untenable, among others, by R. RAMÓN GUERRERO, *De nuevo sobre la “izquierda*

the role of form in the *Ilāhiyyāt*, especially in the context of the theory of emanation, has been clarified⁵. Several essays, furthermore, have focused on both matter and form, trying to elucidate Avicenna's understanding of two problematic aspects of Aristotle's hylemorphism: the existence and nature of prime (i.e. formless) matter⁶, and the function of matter as the principle of individuation of substantial forms⁷. None of these contributions, however, deals specifically with matter and form in so far as they are causes.

Research on Avicenna's doctrine of the four causes in the *Ilāhiyyāt*, on the other hand, has substantially disregarded material and formal causality. Scholars have directed their attention mostly to Avicenna's conception of the efficient cause, showing how it differs from Aristotle's moving cause⁸; also what Avicen-

aristotélica». *Materia y posibilidad en el Al-Fārābī y Avicena*, «Anales del Seminario de Metafísica», Núm. Extra: *Homenaje a S. Rábade*, Ed. Complutense, Madrid 1992, 965-985.

⁵ See A.-M. GOICHON, *La théorie des formes chez Avicenne*, in *Atti del XII Congresso internazionale di Filosofia (Venezia, 12-18 Settembre 1958)*. Vol. IX. *Aristotelismo padovano e filosofia aristotelica*, Sansoni, Firenze 1960, 131-138; A. HASNAOUI, *Forma fluens – fluxus formae: Généalogie d'une antithèse*, communication held in *Kalām and Philosophy: Perspectives and Problems. A Conference in Honour of Richard M. Frank*, Trinity College, Cambridge University, 22-23 June 2002.

⁶ A pioneering study in this regard is A. HYMAN, *Aristotle's "first matter" and Avicenna's and Averroes' "corporeal form"*, «Journal of Philosophy», 59 (1962), 674-675. Even though Hyman is right in pointing out that, for Avicenna and Averroes, first matter "must belong to the category of substance" (675), his statement according to which first matter "like any other substance ... must possess a form. The 'corporeal form' is that 'form' of 'first matter'" (*ibid.*) needs to be strongly qualified, at least as far as Avicenna is concerned. For in Avicenna the corporeal form, albeit inhering in first matter, is not – properly speaking – the form of first matter, but of the body (i.e. of the compound of first matter and corporeal form). A thorough investigation of this topic is provided by A.D. STONE, *Simplicius and Avicenna on the Essential Corporeity of Material Substance*, in R. WISNOVSKY (ed. by), *Aspects of Avicenna*, Markus Wiener Publishers, Princeton 2001, 73-130, even though the relationship between continuity and potential tridimensionality in Avicenna's understanding of corporeal form needs to be further clarified. The issue of continuity is addressed by Avicenna in the third part of his *Letter to the Vizir Abū Sa'd* – recently edited and translated by Y. Michot (IBN SĪNĀ, *Lettre au vizir Abū Sa'd. Édition princeps d'après le manuscrit de Bursa*, traduction de l'arabe, introduction, notes et lexique par Y. MICHOT, Al-Bouraq, Beirut 2000) – along the lines traced by R. Wisnovsky in his review of Michot's edition («Journal of the Royal Asiatic Society», n. s., 12 [2002], 363-365).

⁷ A. BÄCK, *Avicenna on Existence*, «Journal of the History of Philosophy», 25 (1987), 351-367; ID., *Ibn Sīnā on the Individuation of Perceptible Substances*, «Proceedings of the Patristic, Medieval and Renaissance Conference», 14 (1989), 23-42; ID., *The Islamic Background: Avicenna and Averroes*, in J.E. GRACIA (ed. by), *Individuation in Scholasticism: The Later Middle Ages and the Counter-Reformation 1150-1650*, State University of New York Press, Albany (N.Y.) 1994, 39-67. Some of the interpretations that Bäck proposes in the former contribution are criticized by STONE, *Simplicius and Avicenna ...*, nn. 24, 108.

⁸ This regards *in primis* the role of efficient causality within Avicenna's proof of God's existence in the *Ilāhiyyāt* (M.E. MARMURA, *Avicenna's Proof from Contingency in the Metaphysics of his al-Shifā'*, «Medieval Studies», 42 [1980], 337-352; H.A. DAVIDSON, *Avicenna's Proof of the Existence of a Being Necessarily Existent by Virtue of Itself, and Averroes' Critique of Avicenna's Proof*, in ID., *Proofs for Eternity, Creation and the Existence of God in Medieval Islamic and Jewish Philosophy*, Oxford University Press, New York-Oxford 1987, 281-335) and other related features of Avicenna's conception of the efficient cause, such as the simultaneousness of essential efficient causes and their effects – explaining why the universe is eternal as its essential efficient cause, namely God, is (M.E. MARMURA, *Avicenna on Causal Priority*, in

na says about the efficient cause being anterior to the final cause in existence, but posterior to it in essence, has been investigated⁹. The study of the Latin reception of Avicenna, with particular regard to Albertus Magnus, Thomas Aquinas and John Duns Scotus, has been marked by the same insistence on efficient causality¹⁰. In this context, the only contributions taking into account, at least in part, material and formal causality are those dealing with Avicenna's way of classifying the causes into internal (material and formal causes) and external (efficient and final causes)¹¹. For the rest, Avicenna's doctrine of matter and form as causes has remained unexplored.

In sum, Avicenna's doctrine of material and formal causality in the *Ilāhiyyāt* still has to be ascertained in a systematic way. Methodologically, three requirements have to be met. First, all the pertinent passages of the *Ilāhiyyāt* concerning the issue under examination have to be identified and collected. Second, the *loci paralleli* and the references to the metaphysical treatment of material and formal causality occurring in other sections of the *Sifā'* have to be properly considered. Third, what Avicenna draws from his sources (especially from Aristotle's *Metaphysics*) has to be ascertained and distinguished from what he states on

P. MOREWEDGE [ed. by], *Islamic Philosophy and Mysticism*, Caravan Books, Delmar [N.Y.] 1981, 65-83), and the distinction between physical and metaphysical efficient causes – explaining why the proof of God's existence is the task of metaphysics, not of physics (M.E. MARMURA, *The Metaphysics of Efficient Causality in Avicenna*, in M.E. MARMURA [ed. by], *Islamic Theology and Philosophy*, State University of New York Press, Albany [N.Y.] 1984, 172-187).

⁹ R. WISNOVSKY, *Notes on Avicenna's Concept of Thingness (Say'iyya)*, «Arabic Sciences and Philosophy», 10 (2000), 181-221, especially 212-219; TH.-A. DRUART, 'Shay' or 'res' as Concomitant of 'Being' in Avicenna, «Documenti e Studi sulla Tradizione Filosofica Medievale», 12 (2001), 125-142, especially 139-141.

¹⁰ É. GILSON, *Avicenne et les origines de la notion de cause efficiente*, in *Atti del XII Congresso internazionale di Filosofia ...*, 121-130; ID., *Notes pour l'histoire de la cause efficiente*, «Archives d'Histoire doctrinale et littéraire du Moyen Age», 37 (1962), 7-31 (repr. in ID., *Études médiévales*, Vrin, Paris 1986); W.B. DUNPHY, *St. Albert and the Five Causes*, «Archives d'Histoire doctrinale et littéraire du Moyen Age», 33 (1966), 7-21; A. FRANCHI, *Alberto Magno e le origini della nozione di causalità efficiente. La teoria delle cinque cause nei 'quidam' del V 'Metaphysicorum'*, «Sapienza», 33 (1980), 178-185 (I have summarized the content of the aforementioned studies in A. BERTOLACCI, «*Subtilius speculando*». *Le citazioni della Philosophia Prima di Avicenna nel Commento alla Metafisica di Alberto Magno*, «Documenti e Studi sulla Tradizione Filosofica Medievale», 9 [1998], 261-339, 302-304); M.L. COLISH, *Avicenna's Theory of Efficient Causation and its influence on St. Thomas Aquinas*, in *Atti del Congresso internazionale Tommaso d'Aquino nel suo settimo centenario (Roma-Napoli 17-24 aprile 1974)*. Vol. I. *Tommaso d'Aquino nella storia del pensiero*, Edizioni Domenicane Italiane, Napoli 1975, 296-306; TH.-A. DRUART, *Avicenna's Influence on Duns Scotus' Proof for the Existence of God in the Lectura*, in JANNSENS / DE SMET (ed. by), *Avicenna and His Heritage ...*, 253-266 (with further bibliography).

¹¹ J. JOLIVET, *La répartition des causes chez Aristote et Avicenne: le sens d'un déplacement*, in J. JOLIVET / Z. KALUZA / A. DE LIBERA (éd. par), *Lectio varietates: Homage à Paul Vignaux (1904-1987)*, Vrin, Paris, 1991, 49-65; R. WISNOVSKY, *Towards a history of Avicenna's distinction between immanent and transcendent causes*, in D.C. REISMAN / A. AL-RAHIM (ed. by), *Before and After Avicenna* (Proceedings of the Avicenna Study Group, 1), Brill, Leiden, forthcoming (I wish to thank the author for having allowed me to read this article before publication).

his own. Only after such a preliminary work, it will be possible to assess Avicenna's true position on material and formal causality. Recent scholarship has not always attended these methodological guidelines¹².

The goal of the present article, without aiming at exhaustiveness, is to break the ground for future research on this doctrine. I wish, first, to provide an inventory of the places of the *Ilāhiyyāt* in which Avicenna deals with material and formal causality, summarizing their content (i). Second, to collect allusions to, and partial or provisional accounts of, this theme in the preceding parts of the *Sifā'* (ii). Third, to determine the Aristotelian sources which Avicenna quotes in these places, and his originality in the use of them (iii). Fourth, relying on the gathered data, to cast light on some of the main theoretical trends that govern Avicenna's treatment of material and formal causality (iv).

I. An overview of material and formal causality in the «Ilāhiyyāt»

The *Ilāhiyyāt* consists of four main parts. They correspond to the fundamental elements that – according to the epistemology of the *Posterior Analytics* and its application in *Metaphysics* Γ, 1-2 and E, 1 – characterize a science in general, and the metaphysics in particular, namely: the subject-matter; the species into which the subject-matter is divided; the properties that are proved of the subject-matter; and the principles on which the proof of the subject-matter's properties depends. Roughly speaking, the first part of the *Ilāhiyyāt* (corresponding to the first of the ten treatises of the work) deals with “existent” or “being” (*mawǧūd*) as the subject-matter of metaphysics. The second part (ranging over treatises II and III) takes into account the species of “existent” and the species of “one” and “many”. The third part (encompassing treatises IV-VII) studies the properties of “existent” (IV-VI) and the properties of “one” and “many” (VII). Finally, the fourth part (namely the last three treatises of the work, with the exception of chapters X, 4-5, which are an appendix dealing with practical philosophy) investigates God and the ultimate causes as the first principles of “existent” (with the ontological principles of metaphysics taking the place of the logical principles of the *Posterior Analytics*)¹³.

In each of these four parts of the *Ilāhiyyāt* Avicenna deals with material and formal causality, either briefly or extensively, either within the more general con-

¹² Cf. the remarks on JOLIVET, *La répartition des causes ...*, in section (iv) below.

¹³ I deal in detail with the structure of metaphysics in the *Ilāhiyyāt* in A. BERTOLACCI, *The Structure of Metaphysical Science in the Ilāhiyyāt (Divine Science) of Avicenna's Kitāb al-Sifā' (Book of the Cure)*, «Documenti e Studi sulla Tradizione Filosofica Medievale», 13 (2002), 1-69.

text of causality *tout court*, or on its own. This happens, for the first part, in chapters I, 1-2 (= A); for the second part, in chapter II, 4 (= B); for the third part, in chapters VI, 1 and VI, 4 (= C); and, for the fourth part, in chapters VIII, 1-3 (= D). In each case, the perspective from which Avicenna addresses material and formal causality is different. Schematically speaking, in A the perspective is epistemological (the role and position of causality within the science of metaphysics). In B it is ontological (form as cause of matter in corporeal substances). In C it is aetiological (enumeration, classification and analysis of the different types of causality). In D it is theological (the finiteness of causes as the basis for proving God's existence). This constant resumption of the theme of causality in general, and of material and formal causality in particular, in all the parts of the *Ilāhiyyāt*, according to different points of view, underscores the relevance of this doctrine in Avicenna's conception of metaphysics. In the present section I will briefly describe the content of each of the mentioned *loci*, as far as material and formal causality is concerned.

From the point of view of terminology, Avicenna in the *Ilāhiyyāt* interchangeably uses two different terms for "cause" (*'illa*, *sabab*), and sometimes employs a third term, "principle" (*mabda'*), as a synonym of the previous two. "Form" is constantly expressed by a single term (*šūra*). "Matter", on the contrary, is rendered by a variety of terms (*mādda*, *'unšur*, *qābil*, *hayūlā*, *mawḏū'*). I translate both *mādda* and *'unšur* as "matter", *qābil* as "receiver", *hayūlā* as "hyle", *mawḏū'* as "subject". It is important to stress in this regard that *'unšur* is employed by Avicenna in the meaning of "matter", not of "element". The idea of "element" is conveyed by a different term, namely *ustuquṣṣ*.

Avicenna conceives matter (regardless of the terms he employs to refer to it) in three different ways: first, as substratum of something else; second, as substratum of a form; third as substratum of accidents. Even though Avicenna's use of the aforementioned terms for matter is not absolutely rigorous, the following can be stated with relative certainty: *mādda* and *'unšur* express both the first and the second meaning of matter; *qābil* is essentially a synonym of the previous two terms¹⁴; *hayūlā* conveys the second meaning of matter; *mawḏū'* both the first and the third. Avicenna's double use of *mādda*, *'unšur* and *mawḏū'* is sometimes confusing. In cases of possible ambiguity, *mādda* and *'unšur* in the sense of substratum of a form are translated as "matter*", and *mawḏū'* in the sense of substratum of accidents is rendered as "subject*".

¹⁴ In I, 1, 7, 12 [6, 6] (cf. below, A1.2.3), *qābil* is used as a name for the material cause in general (cf. VI, 5, 299, 14 [347, 99], and IX, 1, 374, 1-376, 9 [435, 31-439, 99] *passim*). In VI, 1, 258, 10 [292, 38], 258, 12 [293, 42], 258, 13 [293, 43], and VI, 4, 281, 17 [324, 4], 282, 2 [324, 7], on the other hand, it appears to be synonymous to *'unšur* in the second sense of matter.

a. Causality in the first part of the «Ilāhiyyāt» (I, 1-2)

Chapters I, 1-2 deal with the epistemological foundation of metaphysics. Causality is addressed there in three different contexts.

(1) First, negatively, in I, 1 Avicenna shows that neither God – named “First Cause” (*al-‘illa al-ūlā*) and “First Principle” (*al-mabda’ al-awwal*)¹⁵ – nor the four causes – called “ultimate causes” (*al-asbāb al-quṣwā*)¹⁶ – are the subject-matter of metaphysics. (1.1) In the case of God this is due to the fact that His existence is proved by metaphysics, whereas it should be assumed by this discipline, if He were its subject-matter; for – according to the Aristotelian epistemology endorsed by Avicenna – every science simply assumes the existence of its own subject-matter¹⁷. (1.2) The argument concerning the ultimate causes is more articulated. Avicenna distinguishes four possible ways of regarding them as subject-matter of metaphysics: (1.2.1) as existents; (1.2.2) as causes; (1.2.3) as each type of them is taken singularly; (1.2.4) as all types of them are taken together. He, then, shows that the only viable option is (1.2.1), but that this implies that “existent” is the subject-matter of metaphysics¹⁸. In (1.2.3) Avicenna explicitly mentions matter (“receiver”) as an example of a specific type of cause¹⁹.

(2) Second, positively, in I, 2 Avicenna states that to be a principle is a property of the subject-matter of metaphysics, namely of “existent”²⁰. A similar claim is made with regard to cause later on in the *Ilāhiyyāt*²¹, as well as in other Avicennian works²².

(3) Third, still positively, in I, 2 Avicenna relates the four causes, named again “ultimate causes” (*al-asbāb al-quṣwā*), and God, called “First Cause” (*al-*

¹⁵ I, 1, 5, 5-6 [3, 42]; 7, 5 [5, 94].

¹⁶ I, 1, 7, 8 [6, 99-00]; 9, 6 [8, 49]; 9, 9-10 [9, 54]; cf. I, 2, 15, 13 [16, 94].

¹⁷ I, 1, 5, 1-7, 6 [3, 35-6, 96].

¹⁸ I, 1, 7, 6-9, 10 [6, 97-9, 55].

¹⁹ I, 1, 7, 12 [6, 6].

²⁰ In the answer to an objection moved against “existent” as the subject-matter of metaphysics, Avicenna maintains (I, 2, 14, 1-13 [13, 47-14, 67]) that “principle” (*mabda’*) is one of the “accidents” (*‘awāriḍ*) of “existent” (14, 4), a “thing that occurs” (*amr ‘āriḍ*) to it, and one its “proper accidents” (*‘awāriḍ hāṣṣa*).

²¹ In VI, 1, 257, 5-6 [291, 6-8], “cause” and “caused thing” are among the “consequent attributes” (*lawāḥiq*) of “existent *qua* existent”.

²² Cf., for example, chapter 8 of the *Maqāla fī l-Nafs ‘alā sunnat al-iḥtiṣār* (*Compendium on the Soul*), the earliest philosophical treatise by Avicenna, where “principle” and “cause” are designated as “consequent attributes” (*lawāḥiq*) of “existent” (S. LANDAUER, *Die Psychologie des Ibn Sinā*, «Zeitschrift der Deutschen Morgenländische Gesellschaft», 29 [1875], 335-418, 361-365; IBN SINĀ, *Aḥwāl al-Nafs*, ed. A. F. Al-Ahwānī, Cairo 1952, 145-178, 168-171; English translation and study in GUTAS, *Avicenna ...*, 16-19).

sabab al-awwal) to “existent”, by portraying the former as “the causes of every caused existent with regard to its existence”, and the latter as that “from which emanates every caused existent *qua* caused existent”; then, he assigns their treatment to the fourth part of the *Ilāhiyyāt*²³.

By taking “existent” as the subject-matter of metaphysics, regarding God and the ultimate causes as the causes of “existent”, and considering these kinds of causes as the topic of one part of metaphysics, Avicenna settles the problem – raised by Aristotle’s *Metaphysics* – of the relationship between Ontology and Theology (in other words: of *metaphysica generalis* and *metaphysica specialis*) within this discipline. Avicenna’s solution became subsequently one of the standard approaches to this issue²⁴.

b. Matter and form as causes in the second part of the «*Ilāhiyyāt*»
(II, 4)

Chapter II, 4, the last chapter of treatise II, belongs to the treatment of the species of “existent”, i.e. of the categories, in the second part of the *Ilāhiyyāt*. Among the categories, Avicenna deals with substance in treatise II, and with quantity, quality and relation in treatise III. Chapter II, 1 takes into account substance in a general way. The following three chapters are devoted to a particular kind of substance, i.e. corporeal substance. Chapters II, 2-3 establish that this substance results from the union of prime matter (i.e. the absolutely formless matter)²⁵ and corporeal form (i.e. the first form of prime matter). Avicenna first proves that corporeal substance is a continuous and divisible entity and that, because of this, its form – i.e. corporeal form – must inhere in a subject – namely prime matter (II, 2); then he shows that prime matter cannot exist in act without any corporeal form (II, 3).

Chapter II, 4 addresses the issue rising from the mutual dependence of corporeal form and prime matter in terms of existence: which of the two, if any, comes first in the order of existence? The notion of causality plays a key-role in

²³ I, 2, 14, 14-17; cf. 15, 7-8.

²⁴ See A. ZIMMERMAN, *Ontologie oder Metaphysik? Die Diskussion über den Gegenstand der Metaphysik im 13. und 14. Jahrhundert*, Brill, Leiden-Köln 1965 (Peeters, Leuven 1998²), 108-116.

²⁵ This type of matter is called “corporeal matter” (*mādda ġismāniyya*) in II, 3, 72, 3 [82, 45]; 72, 4 [72, 46]; 79, 3 [92, 22]; II, 4, 80, 4 [92, 28]; 89, 13 [103, 35]; “ultimate matter” (*mādda aḥira*) in II, 3, 72, 7 [82, 50]; “corporeal hyle” (*hayūlā ġismāniyya*) in II, 4, 89, 14 [103, 37]; “prime matter” (*mādda ūlā*) in VI, 4, 279, 10 [320, 38]. For a different use of this last expression, see IBN SĪNĀ, *Al-Ṣifā’ Al-Ṭabi’iyyāt. I – Al-Samā’ al-ṭabi’i*, ed. S. Zayed, Organisation générale des Imprimeries gouvernementales, Cairo 1983, 50, 10 [AVICENNA LATINUS, *Liber primus naturalium. Tractatus primus de causis et principiis naturalium*, ed. S. Van Riet, Peeters, Louvain-Brill, Leiden 1992, 90, 81].

Avicenna's answer to this question. Even though causality in this case concerns two specific instances of matter and form (i.e. prime matter and corporeal form), Avicenna's point appears extendable to matter and form as such. Probably for this reason Avicenna explicitly mentions prime matter ("corporeal matter") only at the beginning and at the end of the chapter²⁶, whereas during it he refers to matter and form with no further qualification.

In II, 4 five main theoretical points, roughly corresponding to its five main parts, are established. (1) The relationship of matter and form is a causal relationship, since all the other types of relationship do not apply to their case²⁷. (2) The form is the cause of the matter's existence, since the opposite is not the case, due to the potentiality of matter²⁸. (3) The form is not the only cause of the matter's existence when corruptible corporeal substances are concerned, since, in order to account for their existence, also a cause determining the succession of forms in their matter is required²⁹. At the end of the chapter Avicenna states that the same holds true in the case of incorruptible corporeal substances, since the constant association of their matter with their form requires a cause³⁰. The further cause of the matter's existence is described by Avicenna as a separate (i.e. immaterial) thing. In all likelihood Avicenna refers to the "Giver of forms", i.e. the tenth celestial intelligence. (4) In both cases, form is anterior to matter, because of the one-way causal relationship connecting the former to the latter³¹. (5) After repeating that form is the cause of matter, not vice-versa, due to the form's actuality and the matter's potentiality, Avicenna maintains that what bestows existence to something else is of two types: it is either separated from the thing to which it bestows existence, or it is joined to it³².

The content of B is clarified by C3.2 (cf. below) in two important respects. First, by "matter's existence" caused by the form, Avicenna does not mean the existence of matter as such, but its actual existence within the hylomorphic compound. Second, the further cause of the matter's existence besides the form is an efficient cause.

On account of its focusing on prime matter and corporeal form (and, indirectly, on matter and form *tout court*) as causes, chapter II, 4 is one of the relevant texts of Avicenna's doctrine of material and formal causality. For it proves,

²⁶ II, 4, 80, 4 [92, 28]; 89, 13 [103, 35]; 89, 14 [103, 37]. The corporeal form is called "material form" (*sūra māddiyya*) at 80, 5 [92, 29].

²⁷ II, 4, 80, 5-83, 3 [92, 28-95, 97].

²⁸ II, 4, 83, 4-85, 3 [96, 98-98, 42].

²⁹ II, 4, 85, 4-87, 12 [98, 43-100, 97].

³⁰ II, 4, 89, 13-15 [103, 34-38].

³¹ II, 4, 87, 13-88, 13 [101, 98-09].

³² II, 4, 88, 13-89, 12 [101, 10-102, 33].

negatively, that matter is not the cause of the form's existence, and, positively, that form is one of the causes of the matter's existence.

c. Material and formal causes in the third part of the «Ilāhiyyāt»
(VI, 1; VI, 4)

Treatise VI deals specifically with “cause” and “caused thing”, and marks the end of the analysis of the properties of “existent” (IV-VI). The properties of “existent” are, besides “cause” and “caused thing”, “anteriority” and “posteriority”, “potency” and “act”, “perfect” and “imperfect”, “all” – together with “entire” – and “part” in treatise IV, “universal” and “particular” in treatise V. Treatise VI is fully devoted to the investigation of the four types of causes and of their relationship with their effects³³. Avicenna's approach is that of a broad investigation of all the types of causes considered as such.

Within treatise VI, material and formal causes are dealt with in five main places: (1) in the enumeration of the different types of causes, in chapter VI, 1³⁴; (2) in their classification, within the same chapter³⁵; (3) in some brief remarks on the state of matter and form immediately thereafter³⁶; (4) in the more detailed account of this same topic in chapter VI, 4³⁷; (5) in the proof that metaphysics deals with all four types of causes at the end of chapter VI, 5³⁸. (1) and (2) belong to the analysis of the various “species” (*anwā'*) of causes; (3) and (4) are part of the account of their “states” (*ahwāl*)³⁹. (5) is a sort of appendix of chapter VI, 5 and of the entire treatise VI.

The most important theoretical points that Avicenna makes about material and formal causality in the aforementioned places are the following.

(1) When enumerating the different kinds of causes, Avicenna maintains that: (1.1) form and matter*, as causes, are part of the caused thing, whereas agent and end are external to the caused thing⁴⁰. (1.2) Matter* is different from form in so

³³ Chapters VI, 1-2 have been translated into English by A. HYMAN, *The Healing, Metaphysics. First Treatise, Chapter 6. Sixth Treatise, Chapter 1, Chapter 2*, in A. HYMAN / J. WALSH (ed. by), *Philosophy in the Middle Ages. The Christian, Islamic and Jewish Traditions*, Hackett, Indianapolis 1970, 240-254.

³⁴ VI, 1, 257, 7-17 [291, 10-292, 25].

³⁵ VI, 1, 258, 1-17 [292, 25-293, 50].

³⁶ VI, 1, 258, 17-259, 10 [293, 51-294, 68].

³⁷ VI, 4, 278, 12-283, 3 [320, 24-325, 38].

³⁸ VI, 5, 298, 19-299, 10 [346, 74-348, 23].

³⁹ For the distinction between the “species” and the “states” of the causes, see VI, 1, 257, 3 [291, 2-3]; 258, 17 [293, 50]; VI, 5, 298, 19 [346, 74].

⁴⁰ VI, 1, 257, 7-9 [291, 10-14].

far as it is the cause that accounts for the potentiality of the caused thing, whereas form is the cause that accounts for its actuality⁴¹.

(2) From the classification of causes we get acquainted with two different varieties of matter: hyle (= matter*) and subject*. (2.1) About hyle, Avicenna essentially repeats what he has already stated about matter* in (1). Form relates to hyle as it does to matter*⁴². (2.2) Subject* is different from hyle in so far as it is not part of the caused thing. It is similar to hyle in terms of potentiality and predisposition (Avicenna apparently refers to the potentiality and predisposition to receive something else, namely the form in the case of hyle, the accidents in the case of subject*). The classification of causes is either five-fold, if subject* and hyle are considered as different from each other, or four-fold, if they are taken as identical to each other⁴³. (2.3) Matter* (= hyle) is not the cause of the form, but of the compound of matter* and form; however, it is the cause of the compound *per accidens*, since, by itself, it exists only potentially, and whatever exists in such a way is the cause of something else only *per accidens*⁴⁴. (2.4) The subject* is the cause of the subsistence of the accidents that inhere in it; it is the cause of their subsistence because, in itself, it is in act⁴⁵.

Probably looking forward at (2.3), Avicenna starts the description of the causes in (1) not with the material cause (as invariably happens in Aristotle), but with the formal one. The potentiality of matter*, according to (2.3), if compared with the actuality of subject*, according to (2.4), marks a second difference – besides the one stated in (2.2) – between them.

(3) In his first remarks on the state of the material and formal causes, Avicenna maintains that: (3.1) the subject* is not the cause of the accidents in the same way as it is the cause of the compound of subject* and accidents. He does not explain this point further⁴⁶. (3.2) The form is not the cause of matter* in the same way as it is the cause of the compound of matter* and form⁴⁷. What Avicenna says in (3.2) allows more than one interpretation. The most plausible reading of the text seems to be the following. (3.2.1) In the case of form and matter*, the cause (i.e. the form) does not bestow existence to the other thing (i.e. to matter*); the existence is bestowed by something else (i. e. by the efficient cause), even though form is in matter*. (3.2.2) In the case of form and compound, the

⁴¹ VI, 1, 257, 7-9 [291, 10-14].

⁴² VI, 1, 258, 2-5 [292, 27-31].

⁴³ VI, 1, 258, 5-11 [292, 31-293, 41].

⁴⁴ VI, 1, 258, 12-15 [293, 41-47].

⁴⁵ VI, 1, 258, 15-17 [293, 47-50].

⁴⁶ VI, 1, 258, 15-18 [293, 51-53].

⁴⁷ VI, 1, 259, 1-10 [293, 53-294, 68].

form is the proximate and intermediate cause in the process of bestowing existence; the ultimate cause of this process is another cause (i.e. the efficient cause). (3.2.3) The form is not the efficient cause of matter* (in the sense of the compound of matter* and form), but it is part of the efficient cause. (3.2.4) The form is the formal cause of the compound of matter* and form; it is the form, not the formal cause, of matter*. From (3.2) it appears that the discussion in B pertains to case (3.2.2). In other words, when Avicenna maintains in B that the form is the cause of the existence of matter*, he means that the form is the cause in virtue of which matter* exists in act in the compound, not that the form is the cause of the existence of matter* in so far as it is matter.

(4) In his more detailed account of the state of material and formal causality, Avicenna establishes the following points regarding the material cause. (4.1) He defines matter in terms of what has the potency for the existence of something else⁴⁸. (4.2) He then enumerates the different types of matter, distinguishing the following cases: (4.2.1) the tablet used for writing with regard to the writing; (4.2.2.1) the wax with regard to the statue made of it or (4.2.2.2) the child with regard to the adult; (4.2.3) the wood with regard to the bed made of it; (4.2.4) a thing black with regard to the same thing, once it has become white; (4.2.5) water with regard to air; (4.2.6) the semen with regard to the animal; (4.2.7) prime matter with regard to form (i.e. corporeal form); (4.2.8) the myrobalan with regard to the electuary (the electuary is a medicament and the myrobalan one of its ingredients); (4.2.9) wood and stone with regard to the house made of them, or the unities with regard to the number made of them⁴⁹. (4.2.10) Avicenna discards as erroneous the opinion of those who regard the premises of a syllogism as the material cause of the conclusion⁵⁰. (4.3) Avicenna then classifies the aforementioned types of matter, assuming as the matter's main character the fact of being carrier of potentiality⁵¹. (4.4) Afterwards he provides a specific discussion of "element", an acception of matter corresponding to the last two of its types⁵². (4.5) Avicenna then distinguishes the cases in which something can be said to derive from its matter (like "the door derives from wood") from the cases in which it cannot, and the cases in which something can bear the adjective taken from its subject (like "wooden" from wood) from the cases in which it cannot⁵³. (4.6) He further distinguishes the subject that is common to all (material)

⁴⁸ VI, 4, 278, 12-13 [320, 24-25].

⁴⁹ VI, 4, 278, 13-279, 15 [320, 25-321, 46].

⁵⁰ VI, 4, 279, 15-17 [321, 46-50].

⁵¹ VI, 4, 280, 1-14 [321, 52-322, 73]. Cf. below, n. 106.

⁵² VI, 4, 280, 14-281, 4 [322, 74-323, 86].

⁵³ VI, 4, 281, 5-14 [323, 87-99].

things (i.e. prime matter) from the subject that is common only to some of them⁵⁴. (4.7) In the context of the absolute passivity of matter*, Avicenna rejects the opinion according to which the matter* which has in itself the principle of movement moves by itself, and distinguishes the matter* of natural things, which is moved by their nature (= their form), from the matter* of artifacts, which is moved by an external agent⁵⁵.

As far as the formal cause is concerned, on the other hand, Avicenna provides: (4.8) an enumeration of its different types, the first three of which share, in different respects, the character of actuality⁵⁶. (4.9) An indication of the identity of formal cause and efficient cause in artificial products⁵⁷. (4.10) A distinction of two ways according to which an efficient cause can produce the form of its effect⁵⁸.

(5) An essential step in certifying that metaphysics deals with all types of causes is the proof that mathematical objects have, besides formal causes, also efficient, material, and final causes. The material cause of mathematical objects is responsible, according to Avicenna, for their divisibility and their receptivity of form. Avicenna identifies extension as the proximate matter of geometrical figures, unities as the proximate matter of number, and number as the proximate matter of numerical properties⁵⁹.

d. The finiteness of material and formal causes in the fourth part of the «Ilāhiyyāt» (VIII, 1-3)

Chapters VIII, 1-3 open the fourth, theological, part of the *Ilāhiyyāt*. They provide a proof of God's existence, and precede the investigation of God's features, starting in chapter VIII, 4. Many aspects of Avicenna's way of proving God's existence in VIII, 1-3 have still to be clarified, especially whether these chapters represent the proof in question on their own, or are rather one of the elements of a more encompassing argument⁶⁰. What is certain, in any case, is that these

⁵⁴ VI, 4, 281, 14-15 [323, 99-324, 2].

⁵⁵ VI, 4, 281, 16-282, 5 [324, 2-12].

⁵⁶ VI, 4, 282, 6-14 [324, 13-325, 26].

⁵⁷ VI, 4, 282, 15-18 [325, 26-32].

⁵⁸ VI, 4, 282, 19-283, 3 [325, 32-33].

⁵⁹ VI, 5, 299, 11-14 [347, 94-98].

⁶⁰ See, on this topic, G. HOURANI, *Ibn Sīnā on Necessary and Possible Existence*, «Philosophical Forum», 4 (1972), 74-86; MARMURA, *Avicenna's Proof from Contingency ...*; DAVIDSON, *Avicenna's Proof ...*; U. RUDOLPH, *La preuve de l'existence de Dieu chez Avicenne et dans la théologie musulmane*, in A. DE LIBERA

chapters constitute the essential core of the proof, since in the *Ilāhiyyāt* Avicenna points mainly to them when he mentions the proof of God's existence⁶¹. The doctrinal importance of the proof is underscored by Avicenna himself in chapters I, 2-3, which elucidate its impact on the epistemic status of metaphysics and the relationship of metaphysics with natural philosophy. For the proof (a) entails that God is not the subject-matter of metaphysics⁶²; (b) belongs properly to metaphysics, not to natural philosophy⁶³; (c) is metaphysical in character, since it does not rely on sensible data⁶⁴. Due to its theoretical relevance, the nature and implications of Avicenna's proof of God's existence are one of the major targets of Averroes' criticism of Avicenna⁶⁵.

The proof of God's existence in chapters VIII, 1-3 starts with, and mainly consists of, the demonstration that each of the four types of cause taken into account in C are finite, i.e. that the causal concatenation in each of them necessarily comes to an end. This demonstration occurs in chapters VIII, 1-2 and in the first part of chapter VIII, 3⁶⁶. There Avicenna shows that nothing can have an infinite series of efficient causes (where each cause is the efficient cause of its effect and the effect of another efficient cause); the same point is repeated with regard to the other three types of cause. In each case, according to Avicenna, it is necessary to arrive to a cause which is not the effect of a previous cause of the same type. These are the "ultimate causes" to which Avicenna refers in A3. Then, in the second part of VIII, 3, Avicenna proceeds to show that God is the cause of these primary causes⁶⁷. Despite the fact that, in his opinion, divine causality is limited to efficient and final causality⁶⁸, Avicenna does not restrict his proof of the finiteness of the causal sequences in VIII, 1-3 to these two types of causes. He includes in the proof also material and formal causes.

/ A. ELAMRANI-JAMAL / A. GALONNIER (éd. par), *Langages et philosophie. Hommage à J. Jolivet*, Vrin, Paris 1997, 339-346, especially 340-344.

⁶¹ Cf. I, 4, 27, 9 [30, 76]; VIII, 1, 327, 4-5 [376, 6]; VIII, 3, 340, 10-11 [393, 70]; VIII, 4, 343, 10 [397, 55]. Another mention of the proof of God's existence in the *Ilāhiyyāt* occurs in I, 3, 21, 1-8 [23, 29-24, 41], where the proof, however, appears to have a broader scope, including also chapters I, 6-7.

⁶² I, 2, 5, 16-6, 16 [4, 58-5, 85].

⁶³ I, 2, 6, 17-7, 6 [5, 86-6, 96].

⁶⁴ I, 3, 21, 1-8 [23, 29-24, 41].

⁶⁵ See DAVIDSON, *Avicenna's Proof ...* [cf. *supra*, nt. 8].

⁶⁶ VIII, 3, 340, 14-341, 18 [393, 74-395, 11].

⁶⁷ VIII, 3, 342, 1-343, 6 [395, 12-397, 52].

⁶⁸ God is described by Avicenna in the fourth part of the *Ilāhiyyāt* as an efficient cause (VIII, 3, 342, 4 [om.]; IX, 1, 373, 3 [434, 2]). Elsewhere He is portrayed as both an efficient and a final cause (I, 4, 27, 18-28, 1 [31, 90]). That God is a final cause is implied by what Avicenna states in VI, 5, 300, 8-9 [348, 22-23]. Avicenna's conception of divine causality is the reflex of what Aristotle says in *Metaphysics* Λ, 7 about God as Unmoved Mover and as a mover that moves by being object of love.

The treatment of material and formal causality in VIII, 3 consists of three main parts. (1) In chapter VIII, 1, after having shown that efficient causes are finite⁶⁹, Avicenna deals with the finiteness of material causes⁷⁰. (2) Chapter VIII, 2 in its entirety is devoted to the expounding and rejecting some objections that can be moved against the doctrine of the finiteness of the material cause established in the previous chapter. (3) In the first part of chapter VIII, 3, finally, after having proved the finiteness of the final causes⁷¹, Avicenna briefly deals also with the finite character of formal causes⁷².

The main theoretical points that Avicenna makes in these sections are the following. (1.1) He starts with a definition of material cause as that thing which is part of something else's existence (or: which is an essential part of something else), which exists before the caused thing, and from which the caused thing comes⁷³. (1.2) He then clarifies that the expression "x comes from y" means "part of y enters in x", and distinguishes two senses according to which this happens: (1.2.1) either the part of y entering in x is the substance of x, x moves towards y as towards its perfection, and the substance of y is preserved – as when from a child (a human being) a man (another human being) comes; (1.2.2) or the part of y entering in x is a portion of the substance of y, namely its matter*, y does not move towards x, and the substance of y ceases to be – as when from some water some air comes⁷⁴. (1.3) Then Avicenna passes to prove that the material causes in case (1.2.1) are finite: this depends on the fact that the substance of y is part of x, and x, being finite, cannot be composed of infinite actual parts (in fact, this shows only that x cannot have infinite material causes at the same time, not that y cannot be the material cause of x, z the material cause of y, and so on *ad infinitum*)⁷⁵. (1.4) Also in the case (1.2.2) the material causes are finite. For in this case, if x comes from y, then y can only come from x, due to the opposition between their forms⁷⁶. (1.5) Finally, Avicenna proves that in case (1.2.1) x can come from y, but y cannot come from x. For x is the perfection of y, and something imperfect can move towards something perfect, but not vice versa⁷⁷. Avicenna calls the material cause "subject*" in (1.3) and (1.4), and "cause as subject*" (*'illa mawdū'iyya*) in (1.5).

⁶⁹ VIII, 1, 327, 11-329, 7 [326, 16-379, 64].

⁷⁰ VIII, 1, 329, 7-331, 13 [379, 64-381, 27].

⁷¹ VIII, 3, 340, 14-341, 13 [393, 74-395, 3].

⁷² VIII, 3, 341, 14-18 [395, 4-11].

⁷³ VIII, 1, 329, 7-9 [379, 64-68].

⁷⁴ VIII, 1, 329, 10-330, 8 [379, 69-380, 95].

⁷⁵ VIII, 1, 330, 9-13 [380, 95-03].

⁷⁶ VIII, 1, 330, 14-331, 9 [381, 4-21].

⁷⁷ VIII, 1, 331, 9-13 [381, 21-27].

(2) The exposition and criticism to which Avicenna submits the objections addressed against the finiteness of the material causes are, of course, very interesting, but also extremely detailed and articulated. They cannot, therefore, be summarized here. Avicenna's aim is to defend the doctrines established in part (1). The theoretical acquisitions of section (2), hence, can be regarded as an expanded version of those of section (1).

(3) Avicenna's proof of the finiteness of formal causes is very brief. He points out that the form (i.e. the essential or specific form) of something is only one, and that something can have more than one form only according to different degrees of generality (i.e. a particular horse has only the form of horseness; the forms of animality, corporality etc. belong to it in so far as they are, respectively, the genus of its specific form, the genus of its genus and so on). But the sequence of species and genera is finite.

II. Material and formal causes in the other parts of the «Šifā'»

Aristotle deals with the four causes not only in the *Metaphysics* but in other parts of the *corpus* as well. The most important *loci* are *Posterior Analytics* B, 11 and *Physics* B, 4 and B, 7. Following Aristotle, Avicenna deals with the four causes (material and formal causes included) also outside the *Ilāhiyyāt*, in the sections of the *Šifā'* corresponding to the *Posterior Analytics* – the *Kitāb al-Burhān* (*Book of Demonstration*)⁷⁸ – and to the *Physics* – the *Kitāb al-Samā' al-ṭabī'i* (the Arabic correlative of the *Liber de Physico auditu*)⁷⁹. The relevant *loci* are *Burhān* IV, 5 (= *An. Post.* B, 11), and *Samā' ṭabī'i* I, 10-12 (= *Phys.* B, 4) and I, 15 (= *Phys.* B, 7). In the *Samā' ṭabī'i* Avicenna deals with causality – more independently from Aristotle and as a sort of introduction to the subsequent discussion – also in one of the very first chapters (I, 2). A thorough investigation of these *loci* cannot be provided here. Further informations on the aforementioned chapters of the *Samā' ṭabī'i* are available in A. Hasnaoui's studies on the dependence of this work upon Aristotle's *Physics*⁸⁰. In what follows I will rather focus on some

⁷⁸ IBN SĪNĀ, *Al-Šifā'*. *Al-Mantiq. 5 – Al-Burhān*, ed. A. 'Afifi, Cairo 1956.

⁷⁹ IBN SĪNĀ, *Al-Šifā'*. *Al-Ṭabī'iyyāt. 1 – Al-Samā' al-ṭabī'i ...* The Latin Medieval translation of the first treatise of this work has been recently edited in the Avicenna Latinus series (AVICENNA LATINUS, *Liber primus naturalium ...*).

⁸⁰ A. HASNAOUI, *Aspects de la synthèse avicennienne*, in M.A. SINACEUR (éd. par), *Penser avec Aristote*, Erès, Toulouse 1991, 227-244; ID., *Commentaire et démonstration. Brèves remarques sur la Physique du Šifā' d'Avicenne*, in M.-O. GOULET-CAZÉ ET AL. (éd. par), *Le Commentaire entre tradition et innovation. Actes du colloque international de l'Institut des traditions textuelles*, Paris et Villejuif, 22-25 septembre 1999, Vrin, Paris 2000, 509-519; ID., *La Physique du Šifā': aperçus sur sa structure et son contenu*, in JANSENS / DE SMET (ed. by), *Avicenna and His Heritage...*, 67-80.

allusions present in the *Burhān* and the *Samā' tabī'i* to the metaphysical analysis of material and formal causality.

Avicenna conceives metaphysics as a discipline encharged with the epistemological foundation of all the other sciences. This is implicit, according to Avicenna, in one of the names that metaphysics bears in the *Ilāhiyyāt*, namely “first philosophy” (*falsafa ūlā*): first philosophy is presented by Avicenna as the discipline that provides the verification of what he calls, broadly speaking, the “principles” (*mabādi'*) of the other sciences⁸¹. In the course of *Ilāhiyyāt* I, 2 the identity of these principles is clarified: on the one hand, they are the subject-matters of the particular sciences (like “body” for natural philosophy, “measurable quantity” for mathematics and so on), in so far as these are subdivisions of the species of “existent”⁸²; on the other hand, they are certain notions that are common to, but not investigated by, the other sciences (like “one *qua* one”, “many *qua* many”, “coincident”, “different”, “contrary” and so on), in so far as these are properties of “existent”⁸³. Furthermore, metaphysics, in Avicenna's conception, also verifies the validity of the principles of the other sciences in the strict sense, i.e. of the axioms of non-contradiction and of the excluded middle (I, 8). This hierarchical view of the system of sciences appears to be a development of the conception of metaphysics as first wisdom and first philosophy advanced by Aristotle in *Metaphysics* Γ, 3 and E, 1. How much it is also compatible with the epistemology of the *Posterior Analytics*, to which Avicenna constantly refers in the *Ilāhiyyāt*, is a question in need of further investigation.

The founding role that Avicenna assigns to metaphysics with regard to the other sciences implies the presence of cross-references between the *Ilāhiyyāt* – which is the last part of the *Šifā'* – and the previous sections of this work. In the parts of the *Šifā'* preceding the *Ilāhiyyāt*, the investigation of certain doctrines is delegated to metaphysics. In the *Ilāhiyyāt*, vice versa, some themes already dealt with in other sections are resumed and further developed, and particular theories are introduced as the principles of the preceding disciplines⁸⁴. These inter-

⁸¹ I, 1, 5, 7-8 [3, 45-46].

⁸² I, 2, 14, 18-15, 7 [15, 73-85].

⁸³ I, 2, 12, 15-13, 7 [12, 18-29].

⁸⁴ Allusions to the foundation of natural philosophy occur in II, 3, 78, 14 [91, 11-12]; III, 7, 139, 13 [157, 37]; VI, 5, 294, 4-5 [339, 31-32]. Metaphysics proves the existence and describes the nature of the subject-matters of natural philosophy – namely corporeal substance – and mathematics – discrete and continuous quantity – in II, 2-3 and III, 3-5 respectively. In V, 1-2, within the analysis of universals, Avicenna deals with some doctrines that he had mentioned, but delayed to metaphysics, in the *Madhal*, i.e. in his reworking of Porphyry's *Isagoge*.

connections between metaphysics and the other sciences are certainly present in the Aristotelian *corpus* as well⁸⁵. In Avicenna's *Šifā'*, however, they are much more frequent and widespread. The doctrine of material and formal causality is an example of this trend. With regard to it Avicenna establishes a connection between metaphysics and natural philosophy.

In *Burhān* IV, 5 we find no particular reference to a forthcoming metaphysical analysis of causality. An earlier chapter of the same work (II, 9), on the contrary, provides very interesting clues on this topic. In *Burhān* II, 9 Avicenna glosses over *Posterior Analytics* A, 9. In this chapter, among other things, Aristotle deals with the relationship between inferior and superior sciences (like music with respect to arithmetic). He assigns to the former the demonstration “that”, to the latter the demonstration “why”, where the *demonstrandum* is the connection of subject and predicate within a certain proposition (like the connection of “triangle” with “geometrical figure whose internal angles amount to two square angles”). In his own reworking of this Aristotelian passage, Avicenna applies the relationship between inferior and superior science to the case of “natural science” (*‘ilm ṭabī‘ī*), regarded as inferior science, and metaphysics – called “first philosophy” (*al-falsafa al-ūlā*) – taken as superior science⁸⁶. Avicenna shows how these two disciplines provide different causes of the same phenomena, and states that the causes provided by natural philosophy are causes “that”, whereas the causes provided by metaphysics are causes “why”. He elucidates this point by means of two examples. First, when explaining why the “first movement” (i.e. the movement of the first celestial sphere) is uniform and stable, natural science supplies the formal cause (the nature of the celestial bodies has no contrary) and the material cause (the matter of the celestial bodies is simple and without differences, and, consequently, incorruptible and unchangeable); first philosophy, on the other hand, points at what Avicenna calls “the separate efficient cause” (*al-‘illa al-fā‘ila al-mufāriqa*) – identified with the Pure Good and the Pure Intellect – and at “the first final cause” (*al-‘illa al-ġā‘iyya al-ūlā*) – identified with the Pure Existence (*al-wuġūd al-mahḍ*), or, according to another manuscript tradition, the Pure Generous (*al-ġawād al-mahḍ*). Second, when explaining why the Earth is not perfectly spherical and water flows in its depths (i.e. the oceans), natural philosophy provides again the formal cause (earth has the quality of being dry and non-elastic, water has the quality of being fluid and elastic), whereas metaphysics points at the final cause (generable things ulti-

⁸⁵ See, for instance, *Phys.* A, 2, 184 b 25-185 a 4; B, 2, 194 b 14-15; *De caelo* A, 8, 277 b 10; *De anima* A, 1, 403 a 27-28 (cf. *Metaph.* E, 1, 1026 a 5-6); A, 3, 407 b 12-13; Γ, 7, 431 b 17-19.

⁸⁶ “First philosophy” is the name of metaphysics in *Burhān* II, 9, 178, 15; 178, 17; 179, 12; it is identified with the “superior science” (*al-‘ilm al-a‘lā*) at 179, 2.

mately stop in their own natural places)⁸⁷.

It is important to remark that Avicenna's aim in this text is to show that *in some particular cases* natural science and metaphysics provide different causes of the same event. In other words, Avicenna does not mean that, invariably, natural science refers only to material and formal causes, whereas metaphysics points exclusively at efficient and final causes. His intention is rather to underscore which causes, among the four, are dealt with more in detail and more properly by these two disciplines.

That both natural science and metaphysics are concerned with all four causes is emphasized by Avicenna in such texts as the beginning of *Samā' ṭabī'i* I, 15 (corresponding to *Physics* B, 7, 198 a 21-24)⁸⁸, and C5. Just because both natural sciences and metaphysics take into account all the four causes, Avicenna constantly stresses their specific ways of doing so, with particular regard to their different treatment of the efficient cause⁸⁹. As a matter of fact, in both the *Samā' ṭabī'i* and the *Ilāhiyyāt* all the four causes are submitted to investigation. However, some signs of a prevailing attention towards the material and the formal causes in the former work, and towards the efficient and the final causes in the latter, can be detected⁹⁰.

Passing now to the *Samā' ṭabī'i*, in the first treatise of this work we find many references to the *Ilāhiyyāt*. Some of these references have already been identified by A. Hasnaoui, Th.-A. Druart and R. Wisnovsky⁹¹. In most cases, Avicenna announces a forthcoming metaphysical treatment of causality. In three par-

⁸⁷ *Burhān* II, 9, 178, 8-179, 13.

⁸⁸ *Samā' ṭabī'i* I, 15, 75, 8-9 [136, 5-7].

⁸⁹ VI, 1, 257, 13-16 [292, 19-24]; VI, 2, 268, 2-4 [306, 14-18]; *Samā' ṭabī'i* I, 2, 15, 10-15, 15; I, 10, 49, 11-12.

⁹⁰ The clearest indication in this regard is the extent of Avicenna's treatment of the four causes in the two works. In *Samā' ṭabī'i* I, 10, for example, the investigation of the material cause (49, 13-52, 4 [88, 51-93, 40]), compared to that of the other causes, is the longest. Moreover, in chapter I, 15 of the same work Avicenna remarks that the natural scientist deals in particular with the formal cause (75, 8-9 [136, 6]). In the analysis of the states of the causes in *Ilāhiyyāt* VI, on the other hand, efficient and final causes are discussed much more at length than material and formal ones. For, as we have seen, the treatment of the efficient cause ranges over almost three chapters (namely most of chapter VI, 1 and chapters VI, 2-3 in their entirety), and the final cause is taken into account in two chapters (in the last part of chapter VI, 4, and in the lengthy chapter VI, 5). Comparatively, the joint investigation of the material and formal causes is much shorter, occupying only a pericope of chapter VI, 1 (=C3) and half of the succinct chapter VI, 4 (=C4).

⁹¹ A. Hasnaoui (*Commentaire et démonstration ...; La Physique du Sifā' ...*) takes into account the references (either explicit or implicit) occurring in *Samā' ṭabī'i* I, 1, 7, 6-7 [om.]; I, 2, 14, 10-14 [21, 50-59]; I, 2, 17, 20-18, 2 [27, 72-77]. Th.-A. Druart (*The Human Soul's Individuation and its Survival after the Body's Death: Avicenna on the Causal Relation between Body and Soul*, «Arabic Sciences and Philosophy», 10 [2000], 259-273, 271 and n. 23) mentions the reference in I, 5, 30, 6-7 [51, 33-36]. R. Wisnovsky (*Notes on Avicenna's Concept of Thingness ...*, 217) deals with the reference in I, 11, 53, 10-12 [95, 14-19].

ticular instances material and formal causes are involved, either by themselves, or in conjunction with the other two kinds of causality. These three references – unnoticed until now – deserve a closer examination.

The first reference occurs in *Samāʿtabīʿi* I, 2, at the end of the preliminary treatment of the four causes⁹². According to Avicenna, that the principles are just these four is something assumed by the natural scientist and demonstrated in metaphysics. Also in this case, as in *Burhān* IV, 5, metaphysics is called “first philosophy” (*falsafa ūlā*). The part of the *Ilāhiyyāt* referred to is C2, where causes are classified in order to show that their number amounts to four (if matter* and subject* are subsumed under the general concept of matter) or, at most, to five (if matter* and subject* are regarded as distinct types of causes).

The second reference takes place at the beginning of chapter I, 10⁹³. According to Avicenna, not the natural scientist, but “the philosopher dealing with divine things” (*al-ilāhī*) has to show (a) that everything generable and corruptible, or everything in movement, or everything resulting from matter and form, is caused; and (b) that the causes are the aforementioned four. As to point (a), the reference is to *Ilāhiyyāt* VI in its entirety. As to point (b), Avicenna envisages once again *Ilāhiyyāt* C2.

Also the third reference occurs in chapter I, 10; it concerns the relationship between matter (in the sense of matter*) and form⁹⁴. Avicenna states that this relationship will be clarified in metaphysics, named “the first discipline” (*al-ṣināʿa al-ūlā*). Among the aspects of the matter-form relationship that Avicenna mentions, (a) the anteriority of form over matter, and (b) the fact that the form is not the exclusive, but rather the proximate factor, of the subsistence of matter, are noteworthy. On account of this evidence, the part of the *Ilāhiyyāt* referred to appears to be mainly, if not exclusively, B. For in B, as we have seen, points (a) and (b) are dealt with (cf. B4 and B3).

If we now turn to the references within the *Ilāhiyyāt* to a previous treatment of material and formal causality, we find one main case. In it the *Ilāhiyyāt* is related to the part of the *Šifāʿ* dealing with natural philosophy⁹⁵. This reference occurs in C4.9, and is totally undetermined (“You already know that ...”). On the

⁹² *Samāʿtabīʿi* I, 2, 16, 17-18 [25, 24-26].

⁹³ *Samāʿtabīʿi* I, 10, 48, 10-11 [86, 7-11].

⁹⁴ *Samāʿtabīʿi* I, 10, 49, 18-50, 5 [89, 63-90, 2].

⁹⁵ Other references to natural philosophy within the metaphysical treatment of material and formal causality regard not material and formal causality itself, but related topics. See, for example, VIII, 1, 330, 11-12 [380, 98-00] (to be compared with VIII, 1, 329, 6-7 [379, 63-64]); VIII, 1, 331, 8-9 [381, 20-21] (referring to chapter 14 of *Al-Kawn wa-l-fasād*, i.e. the section of the the *Šifāʿ* corresponding to Aristotle’s *De generatione et corruptione*: IBN SĪNĀ, *Al-Šifāʿ. Al-Ṭabīʿiyyāt. 3 – Al-Kawn wa-l-fasād*, ed. M. Qassem, Organisation générale des Imprimeries gouvernementales, Cairo 1969; AVICENNA LATINUS, *Liber tertius*

basis of the reference's topic, however, the passage referred to can be indentified as *Samā'tabi'i* I, 11, where Avicenna – paraphrasing Aristotle's *Physics* – maintains that the formal, efficient and final causes are sometimes identical in natural processes⁹⁶. This reference to the *Samā'tabi'i* is very significant. I will go back to it in section (iv) below.

III. The Aristotelian sources of Avicenna's doctrine of material and formal causality

To investigate the doctrinal sources of the *Ilāhiyyāt* is no doubt difficult. Only in a very few cases Avicenna mentions – either by name or by means of a periphrasis – the authors whom he is quoting; the indications of the works from which the quotations are taken are even more rare. All the other references are anonymous or implicit, and this, of course, makes the task of indentifying them arduous. Aristotle's *Metaphysics*, the main source of the *Ilāhiyyāt*, is not an exception in this respect.

In the present section I will provide an inventory of the philosophical sources of Avicenna's doctrine of material and formal causality. The investigation will focus mainly on Aristotle's *Metaphysics*, even though also other aristotelian works (*Physics* and *De Anima*) will be occasionally mentioned. I take into account neither the intermediary role played by the commentators of Aristotle – despite their doubtless relevance for understanding Avicenna's reception of Aristotle, even with regard to the doctrine of causality – nor the Arabic translation(s) of the *Metaphysics* that Avicenna used⁹⁷. As we will see, two of the four passages (C and D) where Avicenna deals with material and formal causality are particularly interesting from the point of view of their Aristotelian sources. For they show two

naturalium de generatione et corruptione, ed. S. Van Riet, Peeters, Louvain-La-Neuve – Brill, Leiden 1987).

⁹⁶ *Samā'tabi'i* I, 11, 54, 10-17 [97, 48-60].

⁹⁷ For an interesting case of Avicenna's use of Themistius' paraphrase of the *Physics* in the *Ilāhiyyāt*, see A. BERTOLACCI, *Metafisica A, 5, 986 a 22-26 nell'Ilāhiyyāt del Kitāb al-Sifā' di Ibn Sīnā*, «Documenti e Studi sulla Tradizione Filosofica Medievale», 10 (1999), 205-231. For the impact of the commentators' interpretations on Avicenna conception of causality, see WISNOVSKY, *Towards a history ...* [cf. *supra*, nt. 11]. I try to assess the identity of the Arabic translations of the *Metaphysics* employed by Avicenna in the *Ilāhiyyāt* in A. BERTOLACCI, *Some Texts of Aristotle's Metaphysics in the Ilāhiyyāt of Avicenna's Kitāb al-Sifā'*, in REISMAN / AL-RAHIM (ed. by), *Before and After Avicenna ...* [cf. *supra*, nt. 11], forthcoming, and *La ricezione del libro Γ della Metafisica nell'Ilāhiyyāt del Kitāb al-Sifā' di Avicenna*, in R. CHIARADONNA (ed.), *Proceedings of the Conference Aristotele e i suoi esegeti neoplatonici. Logica e ontologia nelle interpretazioni greche e arabe* (European Science Foundation, Network Late Antiquity and Arabic Thought; C.N.R., Centro di Studio del Pensiero Antico), Rome, Italy, October 2001, forthcoming.

different typologies of Avicenna's use of Aristotle's *Metaphysics*. Roughly speaking, we can call the first typology "synthetic", the second "analytic".

Throughout the *Metaphysics* Aristotle often maintains that the discipline he is dealing with is intimately connected with the investigation of causes. This happens, for example, in A, 1-2, where "wisdom" (σοφία) – one of the names of metaphysics – is described as the science of the first principles and causes⁹⁸; in α, 1, where "philosophy" (φιλοσοφία) – another name of metaphysics – is portrayed as the science of truth, and truth, in its turn, is linked with causal knowledge⁹⁹; in Γ, 1, where Aristotle canvasses the task of the science he is dealing with as the research of the highest causes of "being"¹⁰⁰, and in E, 1, where a similar statement occurs¹⁰¹; in Λ, 1, where the metaphysical investigation is described as the research of the principles and causes of substance. Some chapters of the *Metaphysics*, in addition, are devoted, or somehow related, to the theme of causality. The main ones are chapters A, 3-10 (dialectical discussion of the predecessors' opinions on the four causes); chapter α, 2 (proof of the finiteness of each of the causal chains); some of the aporias of B (especially the first one, discussing whether metaphysics investigates all the causes or only some of them); chapter Δ, 2 (enumeration and description of the meanings of "cause"), corresponding almost verbatim to *Physics* B, 3, and intimately connected with the preceding chapter (Δ, 1: "principle") and the following one (Δ, 3: "element"); Z, 17 (the causal relationship between matter and form); H, 4 (enumeration of the four causes, with particular regard to the material one); Λ, 2-5 (investigation of the principles of sensible substance).

These Aristotelian *loci*, with regard to Avicenna's use of them, can be divided into four categories. Some of them are concretely quoted by Avicenna. Some others provide the general theme or the context of Avicenna's exposition, but their specific content is not reproduced as such. In a third case, they are disregarded. In a fourth type of circumstances, finally, some of their themes are submitted to criticism. For the sake of brevity, I call these four categories, respectively, "quoted sources", "inspiring sources", "omitted sources", "criticized sources".

(A) Avicenna's discourse in A is mainly original. Inspiring sources of his discussion of the epistemic role of causality in metaphysics are the passages, quoted above, in which Aristotle portrays metaphysics as the science of the first, or ultimate, causes. As to the quoted sources, in two of the four possible ways of

⁹⁸ *Metaph.* A, 1, 981 b 27-29; A, 2, 982 b 9-10; A, 3, 983 a 24-26.

⁹⁹ *Metaph.* α, 1, 993 b 19-20, 23-24.

¹⁰⁰ *Metaph.* Γ, 1, 1003 a 26-27; cf. 1003 a 31-32.

¹⁰¹ *Metaph.* E, 1, 1025 b 1-2.

considering the causes that Avicenna prospects (A1.2.4 and A1.2.3) we can surmise a reference to Δ, 2, 1014 a 18-19 (“and these [i.e. the causes] either as combined, or as taken simply”)¹⁰².

(B) The main topic of B, namely the anteriority of form over matter, has as its inspiring source Z, 3, 1029 a 5-6 (“Therefore if the form is prior to the matter and more real ...”)¹⁰³. As to the doctrine of form as the cause of matter, by means of which the anteriority of the former over the latter is argued, it seems to be inspired by what Aristotle states in Z, 17, 1041 a 32-b 33; however, in this passage the form is described by Aristotle as the cause of the matter's being something (for example as the cause why the matter of a house is a house), whereas in Avicenna it is portrayed as the cause of the matter's existence. For the inspiring source of point B5, see below C1.1.

C and D, as I have already remarked, provide the most interesting instances of Avicenna's reliance on the *Metaphysics* with regard to the doctrine of material and formal causality.

(C) C is a synthesis of many Aristotelian passages, taken not only from the *Metaphysics*, but also from other works. Avicenna quotes these passages by means of a sort of “cut-and-paste” procedure; in this way he brings to unity the variety of his sources.

In general terms and in the perspective of how it is organized, C is primarily inspired by Δ, 2. The enumeration of the causes (C1) corresponds to Δ, 2, 1013 a 24-b 3; their classification (C2) to Δ, 2, 1013 b 16-28. Again, the distinction between the species of the causes (to whose investigation C1 and C2 belong) and their states (including C3 and C4) is taken from Δ, 2, 1013 b 28-30. Furthermore, some of the single doctrinal points Avicenna makes in C refer, either positively or polemically, to Δ, 2 (cf. C2, C4.2.2, C.4.2.10).

Some of the particular sections of C are dependent on Aristotle's works as well. In sections C1.1 to C4.2 some inspiring sources are detectable; in sections C4.4 and following we encounter some quoted sources.

(C1.1) Avicenna's idea of matter and form as internal causes, as opposed to the end and the agent as external (cf. B5), is influenced – ultimately – by Δ, 4, 1070 b 22-30. In this passage of the *Metaphysics*, however, the internal principles include, besides matter and form, also privation, whereas the external ones are reduced to the moving cause¹⁰⁴.

¹⁰² *The Complete Works of Aristotle. The Revised Oxford Translation*, ed. by J. Barnes, vol. II, Princeton University Press, Princeton 1984, 1601.

¹⁰³ *The Complete Works of Aristotle ...*, 1601.

¹⁰⁴ Cf. JOLIVET, *La répartition des causes ...*, 63, n. 4. Wisnowsky (*Immanent and transcendent causes...*) has rightly pointed at another possible source of C.1.1 in the *Metaphysics*, namely Δ, 1, 1013 a 4-10, 19-20

(C.1.2) The connotation of matter and form in terms, respectively, of potentiality and actuality – a constant theme in Avicenna (cf. B2, B5, C2.3, C4.1, C4.3, C4.8) – comes from texts like: Z, 7, 1032 a 20-22 (matter is the cause of potentiality in something else); H, 1, 1042 a 27-28, H, 2, 1042 b 10 (matter is itself potential); H, 2, 1042 b 10-11, 1043 a 12-13, 1043 a 27-28, H, 3, 1043 b 1-2 (form is actuality).

(C2) The distinction between hyle and subject* derives in all likelihood from Δ, 2, 1013 b 16 (where Aristotle calls matter ὕλη = hyle) and 1013 b 21 (where he calls it ὑποκείμενον = subject)¹⁰⁵. Matter is characterized as subject also in Z, 3, 1029 a 1-2; Z, 7, 1033 a 9-10; H, 1, 1042 a 26-27; H, 2, 1042 b 9-10. However, whereas in Aristotle matter as subject means usually “subject of transformation”, in Avicenna it means “subject of accidents”¹⁰⁶.

(C4.2) The examples of the different types of matter have many inspiring sources. Some of them depend on the *Metaphysics*. Examples C4.2.2.2 (the child with regard to the adult) and C4.2.5 (water with regard to air) derive from *Metaphysics* α, 2, 994 a 23-25, 30-31¹⁰⁷. As to example C4.2.8, the electuary appears to be the medical correlative of the honey-water, mentioned by Aristotle in H, 2, 1042 b 15-17. Example C4.2.9 (wood and stone with regard to the house) has a parallel in H, 2, 1043 a 8-9. One example (C4.2.1) comes from the *De anima*: the similitude of the tablet with regard to writing is used by Aristotle in *De anima* Γ, 4, 429 b 30-430 a 2, to describe the intellect with regard to the intelligibles. Other examples are taken from the *Physics*. Examples C4.2.2.1 (the wax with regard to the statue), C4.2.3 (the wood with regard to the bed), and C4.2.7 (prime matter with regard to corporeal form) have a correlative in *Physics* A, 7, 191 a 8-11¹⁰⁸. Example C4.2.6 (the semen with regard to the animal) seems to be taken from *Physics* A, 7, 190 b 4-5¹⁰⁹. Example C4.2.4 is probably original.

(in this passage, however, whereas the external cause is clearly the moving one, the internal cause appears to be other than matter or form). More closely related to Avicenna’s doctrine is probably Δ, 2, 1013 a 24-25, even though only matter is mentioned there as the internal (ἐνυπάρχον) cause.

¹⁰⁵ Cf. A, 3, 983 a 29-30

¹⁰⁶ In this respect Avicenna’s emphasis on the actuality of subject* both in C2.4 and in C4.3 (VI, 4, 280, 3-9 [321, 54-322, 64]) is significant. What Avicenna says about subject* in C4.3 seems to correspond to the first type of matter as enumerated in C4.2, namely the tablet with regard to the writing (C4.2.1). Now, in C4.2.1 Avicenna stresses that the tablet does not undergo any change when something is written on it. Another feature of Avicenna’s conception of subject* is, hence, immutability. But actuality and immutability are incompatible with Aristotle’s view on subject.

¹⁰⁷ For C4.2.5 cf. also *Physics* Δ, 5, 213 a 2.

¹⁰⁸ For C4.2.2 cf. also *Phys.* B, 1, 193 a 12, and *Metaph.* Δ, 2, 1013 a 25. For C4.2.3 cf. *Phys.* B, 1, 193 a 11.

¹⁰⁹ In *Metaphysics* H, 4, 1044 a 35, the semen is introduced as an example of moving cause, with regard not to animal, but to man.

(C4.4) The discussion of “element” is based on Δ, 3, 1014 a 26-b 9, B, 3, 998 b 9-11 and *Categories* 5, 2 b 5-10, as I have shown elsewhere¹¹⁰.

(C4.5) The explanation of the various linguistic expressions of matter is taken from Z, 7, 1033 a 5-23¹¹¹.

(C4.6) The distinction of the different degrees of generality of matter exhibits an interesting synthesis between Δ, 4, 1015 a 7-10, from which the doctrine is taken, and H, 5, 1044 b 31-32, 34-36; 1045 a 2, 5-6, which is the inspiring source of the examples illustrating the doctrine.

(C4.7) The distinction of the matter of natural things from the matter of artificial things is inspired, with an important exception (cf. below), by what Aristotle says in Z, 9, 1034 a 9-21.

(C4.9) Finally, the doctrine of the identity between formal and efficient causes in artificial productions is taken from Z, 7, 1032 a 24-25, 1032 a 32-b 13, 1032 b 21-23.

(C5) The proof that all four causes are investigated by metaphysics is Avicenna's reworking of B, 2, 996 a 18-b 26 (Aristotle's discussion of the first aporia of B), as I have shown elsewhere¹¹².

The presence in C of some veiled criticisms of Aristotle is remarkable. The criticized sources are Δ, 2, 1013 b 20-21 (the premises as material cause of the conclusion) in C4.2.10¹¹³, and Z, 9, 1034 a 11-13 (the matter of things that can be both produced artificially and generated spontaneously can move by virtue of itself; cf. 1034 b 4-6) in C4.7. The occasional presence of a hidden polemic against Aristotle is not surprising. Something of this kind occurs also elsewhere in the *Ilāhiyyāt* and in other sections of the *Sifā'*¹¹⁴. It shows that, even in avowedly Aristotelian works like the *Sifā'*, Avicenna does not blindly follow his model, but always adopts a critical attitude towards it.

(D) Sections D1 and D2 depend on α, 2, 994 a 19-b 6. Section D3 depends

¹¹⁰ BERTOLACCI, *Some texts ...* [cf. *supra*, nt. 97].

¹¹¹ The use of the term “subject” in a loose sense in C4.5 may be due to the presence of this term as a synonym of matter in Z, 7, 1033 a 9-10.

¹¹² A. BERTOLACCI, *The Reception of Book B (Beta) of Aristotle's Metaphysics in the Ilāhiyyāt of Avicenna's Kitāb al-Sifā'*, in J. MACGINNIS (ed. by), *Proceedings of the panel on Avicenna held at the World Congress of Middle East Studies, University of Mainz, Germany, 8 - 13 September 2002*, forthcoming.

¹¹³ Albertus Magnus in his commentary on the *Metaphysics* defends Aristotle against this criticism by Avicenna; see BERTOLACCI, «*Subtilius speculando*» ..., 273-275.

¹¹⁴ For example, in VI, 3, 268, 12-15 [307, 28-33], Avicenna expounds and criticizes a “common opinion” (*māshūr*) about the agent's production of an effect similar to itself, that closely resembles the doctrine stated by Aristotle in α, 1, 993 b 24-25. In *Samā' tabī'i* I, 2, 20, 7-21, 8 [32, 63-34, 100], Avicenna rejects *Phys.* I, 9, 192 a 20-23, where Aristotle describes matter as desiring the form, and compares matter and form, respectively, to the female and the male. In *Kitāb al-Gadal (Book of Dialectic)*, ed. A.F. al-Ahwānī, Organisation générale des Imprimeries gouvernementales Cairo 1965, 50, 5-51, 7, Avicenna dissents from *Top.* A, 2, 101 a 34-b 4 (cf. HASNAOUI, *La Physique du Sifā'* ..., 74-75).

on α , 2, 994 b 16-20. The dependence of D1 and D2 from *Metaphysics* α is stressed by Avicenna himself at the beginning of D2. The quotations of α , 2 in D are significant in more than one respect. First, D2 contains six explicit (i.e. nominal) quotations of Aristotle. In them Aristotle is named “the First Teacher” (*al-mu'allim al-awwal*)¹¹⁵. This is an almost unique case within the *Ilāhiyyāt*: the same happens only in chapters IX, 2-3, where “the First Teacher” is mentioned four times with reference to *Metaphysics* Λ , 7-8¹¹⁶. Second, D2 provides the only example in the *Ilāhiyyāt* of an explicit reference to the *Metaphysics*, by means of the expression “the First Teaching” (*al-ta'lim al-awwal*), and of a book of it (“*Alif minor*”, *alif al-ṣuḡrā*)¹¹⁷. Third, whereas in all the other parts of the *Ilāhiyyāt* Avicenna quotes the *Metaphysics* by means of brief and summarizing paraphrases, in D1 and D3 the paraphrases of α , 2 are lengthy and expanded with respect to Aristotle’s text. Fourth, D is the only case in the *Ilāhiyyāt* of a quotation of the *Metaphysics* in which the exposition/paraphrase of the text (D1) is followed by a separated discussion/defense of it (D2). On account of this and further evidence, I have suggested elsewhere that α , 2 is one of the fundamental parts of the *Metaphysics* alluded to in Avicenna’s autobiography¹¹⁸.

A detailed account of Avicenna’s quotation technique of α , 2 in D cannot be provided here. It is important, however, to stress that Avicenna’s paraphrase, despite its close adherence to Aristotle’s text, is not the mirror image of it¹¹⁹.

Other Aristotelian sources of material and formal causality are omitted by Avicenna. Thus, in his own reworking of *Metaphysics* A, 3-10, Avicenna focuses on Plato’s doctrine of ideas and numbers, and substantially disregards the issue of causality¹²⁰.

¹¹⁵ VIII, 2, 332, 6 [382, 34]; 333, 7 [383, 53]; 335, 3 [386, 5]; 336, 17 [388, 54]; 339, 3 [391, 28]; 339, 15 [392, 47].

¹¹⁶ IX, 2, 392, 4 [462, 43-44] (cf. Λ , 7, 1073 a 7-8, 1072 b 3); IX, 2, 392, 9 [462, 53] (cf. Λ , 8, 1073 a 14-b 1); IX, 2, 392, 15-16 [463, 65] (cf. Λ , 8, 1073 b 1-1074 a 18); IX, 3, 401, 16 [476, 34] (cf. Λ , 8, 1073 b 38-1074 a 17).

¹¹⁷ VIII, 2, 332, 4-5 [382, 30-32].

¹¹⁸ A. BERTOLACCI, *From al-Kindī to al-Fārābī: Avicenna’s Progressive Knowledge of Aristotle’s Metaphysics according to his Autobiography*, «Arabic Sciences and Philosophy», 11 (2001), 257-295.

¹¹⁹ In D1, for example, Avicenna omits the last part of Aristotle’s proof of the finiteness of material causes (α , 2, 994 b 6-9). In D3, similarly, he omits some of Aristotle’s arguments against the infinite regress of formal causes (α , 2, 994 b 20-27).

¹²⁰ VII, 2-3. The only sign of a possible influence of these Aristotelian chapters on Avicenna’s doctrine of causality is the order according to which the causes are enumerated in C1 (form, matter, agent, end), corresponding to the order attended by Aristotle in A, 3, 983 a 26-32.

IV. Some aspects of material and formal causality in the «Ilāhiyyāt»

The data gathered in the previous sections help to clarify some issues regarding Avicenna's doctrine of causality. In what follows two main topics will be discussed. The first is the place of material and formal causality in Avicenna's classification of the causes. The second is Avicenna's conception of the relationship of the efficient cause with, respectively, the material and the formal cause.

More than twenty years ago, J. Jolivet has pointed out that Avicenna, in the *Ilāhiyyāt* and in other metaphysical works, provides a classification of the four causes that is original with regard to Aristotle. According to Jolivet, in Aristotle the main distinction would be between the material cause, on the one hand, and the formal, efficient and final causes, on the other, whereas in Avicenna the fundamental hiatus would be between the material and formal causes – as internal or intrinsic to their effects – on the one hand, and the efficient and final causes – as external or extrinsic to their effects – on the other¹²¹. The rather schematic picture advanced by Jolivet has been recently revised by R. Wisnovsky, who rightly stresses that Aristotle's classification of causes is more fluid, and Avicenna's one is less original, than Jolivet suggests; for Aristotle's way of classifying the cause changes from text to text, whereas Avicenna's pattern is mainly drawn from the Neoplatonic commentators of Aristotle¹²².

This discussion can now be enriched with further elements. First, it has to be remarked that Jolivet restricts his analysis of Avicenna's classification of causes in the *Ilāhiyyāt* to chapters VI, 1-2¹²³. In so doing, he overlooks a fundamental text concerning this issue that occurs in C4.9. In this text, as we have seen in section (i), Avicenna stresses the identity of formal and efficient causes in artificial productions. Thus, Avicenna regards as occasionally identical two of the causes that, according to Jolivet's pattern, are always distinct from each other. Second, as we have seen in section (ii), in C4.9 Avicenna implicitly recalls a passage of *Samā' tabī'i* I, 11. In this passage Avicenna maintains that the formal cause, the efficient cause and, besides them, also the final cause are sometimes identical in natural processes. This association of the formal cause with both the external causes (efficient and final) is noteworthy. Third, as we have seen in section (iii), both C4.9 and the passage of the *Samā' tabī'i* just mentioned depend on Aristotle. They correspond, respectively, to *Metaphysics* Z, 7, 1032 a 24-25, 1032 a 32-b 13, 1032 b 21-23, and to *Physics* B, 7, 198 a 24-27. Now, these are just two of the *loci* on which Jolivet relies to reconstruct Aristotle's classification

¹²¹ JOLIVET, *La répartition des causes* ... [cf. *supra*, nt. 11].

¹²² WISNOVSKY, *Towards a history* ... [cf. *supra*, nt. 11].

¹²³ JOLIVET, *La répartition des causes* ..., 52-56.

of causes¹²⁴. Thus, on account of this evidence, Avicenna appears to adopt, at least somewhere in the *Šifā'*, the very same classification of causes that also Aristotle proposes. The documentation presented here have to be duly considered, before the degree of Avicenna's originality with regard to Aristotle on the classification of causes can be conclusively assessed.

Another tenet of Jolivet's account is the connection between Avicenna's classification of causes, on the one hand, and the famous Avicennian distinction between essence and existence in a created thing, on the other. According to Jolivet, the distinction of internal and external causes parallels the one between essence and existence, since for Avicenna the essence is intrinsic to the thing of which it is essence, whereas the existence comes from outside and is therefore extrinsic¹²⁵. True, in C1 only efficient and final causes are portrayed by Avicenna as causes of existence. There Avicenna describes the efficient cause as "the cause that bestows an existence (*wuğūd*) distinct from itself", and the final cause as "the cause for the sake of which the existence (*wuğūd*) of something distinct from it is realized"¹²⁶. In the case of material and formal causes, on the other hand, he carefully avoids using the word "existence" and speaks, instead, of form and matter as parts, not as causes, of "something's subsistence" (*qiyām al-šay'*)¹²⁷. However, the specific account that Avicenna provides of material and formal causality, both in C and elsewhere, contradicts Jolivet's stand-point.

Avicenna portrays form as a cause of existence both in B and in C. In B2-5 he states that, as far as the existence of matter* is concerned, form is an intermediate cause between matter* and the prime cause of its existence¹²⁸. In C3.2 he clarifies that form, properly speaking, is the proximate and intermediate cause of the hylemorphic compound's existence; he also states that the prime cause of this existence is an efficient cause, and – significantly – depicts form as a part of this latter, despite its being a formal cause of the compound¹²⁹. This link between form and existence, and between the formal cause and the efficient cause, is a topic worthy of consideration in future research on Avicenna's doctrine of causality.

Matter in general is implicitly canvassed as a cause of existence, together

¹²⁴ JOLIVET, *La répartition des causes* ..., 51.

¹²⁵ JOLIVET, *La répartition des causes* ..., 61.

¹²⁶ VI, 1, 257, 10 [291, 14-292, 15]; 257, 16-17 [292, 24-25].

¹²⁷ VI, 1, 257, 7-9 [294, 10-14].

¹²⁸ For the idea of form as the cause of the subsistence of matter*, cf. VI, 1, 259, 1 [293, 53].

¹²⁹ The idea of formal causality as part of efficient causality emerges also from VI, 2 – a chapter devoted to arguing that true causes are simultaneous to their effects. The concept itself of the Giver of Forms as an efficient cause implies a tight relationship between formal and efficient causality.

with form, in a passage of B3¹³⁰. Furthermore, one of the two main types of matter, namely subject*, is described by Avicenna as a cause of existence with regard to the accidents inhering in it, and it is consequently likened to the efficient cause. In B5, among the examples of cause bestowing existence to something else by being distinct from this latter, Avicenna provides substance with regard to accidents¹³¹. Similarly, in C2.2 and C2.4 subject* is classified as a cause that is similar to the efficient cause in two respects: first, it is not part of the caused thing; second, it is the cause of the caused thing's existence. Finally, in C3.1 he portrays subject* as the cause of the accident's subsistence¹³². Avicenna's distinction of matter into matter* and subject* is surely one of the main features of his doctrine of causality. The role of subject* as cause of existence requires a further independent treatment.

For the time being, and on account of the evidence proposed, it is safe to conclude that the essence/existence distinction can be applied to Avicenna's classification of the causes in the *Ilāhiyyāt* into internal and external only with significant qualifications¹³³.

Conclusion

Even though Avicenna's emphasis in the *Ilāhiyyāt* falls primarily on efficient and final causes – due to the fact that God's causality is regarded by Avicenna as the first and most perfect instance of these two types of causality – there are, however, also signs of a distinctive attention paid to material and formal causality. The present article has taken into account the available evidence in this regard.

(i) Causality in general, and material and formal causality in particular, are a *leit-motiv* of the *Ilāhiyyāt*, since they are dealt with in all the major parts of this work. As to the specific importance of material and formal causes within the *Ilāhiyyāt*, the significant data are primarily two. On the one hand, in one part of the *Ilāhiyyāt* the formal cause, in its relationship with matter, is the only type of cause explicitly dealt with by Avicenna. This happens in the second part of the

¹³⁰ II, 4, 83, 13-14 [96, 10-12].

¹³¹ II, 4, 89, 11-12 [102, 31-32].

¹³² In VI, 1, 258, 17-18 [293, 51], Avicenna maintains that subject* is the cause of the accident "that it makes subsist". For a discussion of the relationship, in terms of opposition, between matter and agent, see IV, 2, 177, 5-179, 3 [202, 42-205, 93], 181, 7-182, 18 [208, 50-210, 93], and IX, 1, 374, 1-376, 9 [435, 31-439, 99].

¹³³ R. Wisnowsky (*Towards a history ...*) has carefully documented that in the only work (*Al-Isārāt wal-tanbihāt, Pointers and Reminders*) in which Avicenna properly applies the essence/existence distinction to the classification of causes, the internal/external distinction is no longer employed.

work (cf. B). On the other hand, in another part of the *Ilāhiyyāt* the discussion of the material cause is the longest and the most detailed. This occurs in the fourth part of the work (cf. D), where material causality is exceptionally taken into account, according to different styles, in two distinct chapters, i.e. in the second half of chapter VIII, 1 (=D1) and in chapter VIII, 2 in its entirety (=D2).

(ii) The metaphysical doctrine of material and formal causality is prospectively alluded to in the two most important parts of the *Šifā'* preceding the *Ilāhiyyāt*, namely in the logical part and in the part devoted to natural philosophy. Conversely, the treatment of material and formal causality in the context of natural philosophy is recalled by Avicenna in the *Ilāhiyyāt*. This witnesses to the role of metaphysics, in Avicenna's mind, as the highest form of knowledge and the founding discipline in the system of the sciences.

(iii) Avicenna's treatment of material and formal causality shows an extensive, differentiated and critical use of Aristotle's *Metaphysics* and of other Aristotelian works. In this perspective, Avicenna appears as a profound knower of Aristotle's philosophy, as a faithful interpreter of the First Master's thought, but also as an original thinker.

(iv) From the theoretical point of view, Avicenna's conception of material and formal causality, as every lively and powerful trend of thought, cannot be captured by rigid schemes. Two main doctrinal points emerge from Avicenna's doctrine. Both are worthy to be further investigated. First, Avicenna shows a precise conception of the relationship between formal and efficient causes. Second, he proposes a sharp division of the material cause into matter (in the strict sense) with regard to form and into subject with regard to, and as the cause of the existence of, accidents.